SLV-ED10ME/ED10MPS/ED10PS/ED10SG/ED40ME/ED40PS/ED40SG/ED60ME/ ED60PS/ED60SG/ED70MN/EZ10AZ/EZ40AZ/EZ60AZ/EZ70AS/EZ70NZ

RMT-V245/V245A/V245C/V247/V247C/V247D/V248C

SERVICE MANUAL

Australian Model

SLV-EZ10AZ/EZ40AZ/EZ60AZ/EZ70AS

E Model

SLV-ED10MPS/ED10PS/ED40PS/ED60PS/ED70MN

ME Model

SLV-ED10ME/ED10SG/ED40ME/
ED40SG/ED60ME/ED60SG

Newzealand Model

SLV-EZ10AZ/EZ40AZ/EZ60AZ/EZ70NZ

Photo: SLV-ED70MN

S MECHANISM

Hi-Fi

G-CODE

- **Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENTS VI for MECHANICAL ADJUSTMENTS. (9-921-647-11)**

* The abbreviations of ED10, ED40, ED60, ED70, EZ10, EZ40, EZ60 and EZ70 contained in this service manual are indicated when these models are common to all their corresponding models as given below.

Abbreviated model name	ED10	ED40	ED60	ED70	EZ10	EZ40	EZ60	EZ70
All model names SLV-	ED10ME ED10MPS ED10PS ED10SG	ED40ME ED40PS ED40SG	ED60ME ED60PS ED60SG	ED70MN	EZ10AZ	EZ40AZ	ED60AZ	EZ70AS EZ70NZ

VHS PAL NTSC **VIDEO CASSETTE RECORDER**

MICROFILM

SONY®

SPECIFICATIONS

System
Color system
ED10/ED40/ED60/ED70:
PAL, MESECAM, NTSC 3.58, NTSC 4.43
EZ10/EZ40/EZ60/EZ70:
PAL, NTSC 4.43
TV system
ED10/ED40/ED60/ED70:
B/G, D/K, I
EZ10/EZ40/EZ60/EZ70:
B/G
Channel coverage
ED10/ED40/ED60/ED70:
B/G: VHF E2 to E12/UHF E21 to E69/ CATV S01 to S05, S1 to S41
D/K: VHF R1 to R12, UHF R21 to R69
I: VHF SA4 to SA13/UHF B21 to B69/ CATV S01 to S05, S1 to S41
EZ10/EZ40/EZ60 (COUNTRY is set to AUS), EZ70AS:
VHF AS0 to AS12, AS5A, AS9A
UHF AS28 to AS69
CATV S01 to S05, S1 to S41
EZ10/EZ40/EZ60 (COUNTRY is set to NZ), EZ70NZ:
VHF NZ1 to NZ11
UHF E21 to E69
CATV S01 to S05, S1 to S41
RF output signal
ED10/ED40/ED60/ED70/EZ70NZ:
UHF channels 21 to 69
EZ10/EZ40/EZ60/EZ70AS:
UHF channels 28 to 69
Aerial out
75-ohm asymmetrical aerial socket

Inputs and outputs
LINE IN (ED10/EZ10/EZ40/EZ60)
LINE-1 IN (ED40/ED60/ED70/EZ70)
VIDEO IN, phono jack (1)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN (MONO), phono jack (1) (ED10/ED40/EZ10/EZ40)
AUDIO IN, phono jack (2) (ED60/ED70/ EZ60/EZ70)
Input level: 327 mVrms
Input impedance: more than 47 kilohms
LINE-2 IN (ED40/ED60/ED70/EZ70)
VIDEO IN, phono jack (1)
Input signal: 1Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN (MONO), phono jack (2) (ED40)
AUDIO IN, phono jack (2) (ED60/ED70/ EZ70)
Input level: 327mVrms
Input impedane: more than 47 kilohms
LINE-3 IN (SAT IN) (ED40/ED60/ED70/ EZ70AS)
VIDEO IN, phono jack (1)
Input signal: 1Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN (MONO), phono jack (2) (ED40)
AUDIO IN, phono jack (2) (ED60/ED70/ EZ70AS)
Input level: 327mVrms
Input impedane: more than 47 kilohms
LINE OUT (ED10/ED40/EZ10/EZ40)
LINE-1 OUT (ED60/ED70/EZ60/EZ70)
VIDEO OUT, phono jack (1)
Output signal: 1 Vp-p, 75 ohms, unbal- anced, sync negative
AUDIO OUT, phono jack (1) (ED10/EZ10/ EZ40)
AUDIO OUT (MONO), phono jack (2) (ED40)
AUDIO OUT, phono jack (2) (ED60/ED70/ EZ60/EZ70)
Standard output: 327 mVrms
Load impedance; 47 kilohms
Output impedance: less than 10 kilohms
LINE-2 OUT (AUDIO) (ED60/ED70/EZ60/EZ70)
AUDIO OUT, phono jack (2)
Standard output: 327 mVrms
Load impedance; 47 kilohms
Output impedance: less than 10 kilohms
SKY TV DECODER (EZ70NZ)
VIDEO IN, phono jack (1)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
VIDEO OUT, phono jack (1)
Output signal: 1 Vp-p, 75 ohms, unbalanced.

General
Power requirements
110 – 240 V AC, 50/60 Hz (ED10/ED40/ ED60/ED70)
220-240 V AC, 50 Hz (EZ10/EZ40/EZ60/ EZ70)
Power consumption
18W (ED10/ED40/ED60/EZ10/EZ40)
20W (ED70/EZ60/EZ70)
Operating temperature
5 ˚C to 40 ˚C
Storage temperature
–20 ˚C to 60 ˚C
Dimensions
Approx. 355 × 96 × 289 mm (w/h/d): (ED10/EZ10)
Approx. 430 × 100 × 295 mm (w/h/d): (ED40/ED60/ED70/EZ40/EZ60/EZ70)
including projecting parts and controls
Mass
Approx. 3.6 kg: (ED10/EZ10)
Approx. 4.2 kg: (ED40)
Approx. 4.5 kg: (ED60/ED70/EZ40/EZ60/ EZ70)

Supplied accessories
Remote commander (1)
R6 (size AA) batteries (2)
Aerial cable (1)
Plug adaptor (1) (ED10ME/ED10SG/ED40ME/ ED40SG/ED60ME/ED60SG)

Design and specifications are subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are “pinched” or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

- **Feature Difference**

FEATURE \ SLV-	ED10	ED40	ED60	ED70	EZ10	EZ40	EZ60	EZ70 AS	EZ70 NZ
HEAD/CH	2/2	4/4	4/6	4/6	2/2	4/4	4/6	4/6	4/6
NTSC (3.58) (REC/PB)	O	O	O	O	×	×	×	O	O
(4.43) (REC/PB)	O	O	O	O	×/O	×/O	×/O	O	O
ME-SECAM (REC/PB)	O	O	O	O	×	×	×	×	×
REC (NTSC) (SP/EP)	O	O	O	O	×	×	×	O	O
(PAL) (SP/LP)	O	O	O	O	O	O	O	O	O
PLAY (NTSC) (SP/LP/EP)	O	O	O	O	O	O	O	O	O
(PAL) (SP/LP)	O	O	O	O	O	O	O	O	O
RCA REAR LINE INPUT	O	O	O (3pin Y.W.R)	O (3pin Y.W.R)	O	O	O (3pin Y.W.R)	O (3pin Y.W.R)	O (3pin Y.W.R)
RCA REAR LINE OUTPUT	O	O (3pin Y.B.B)	O (3pin Y.W.R)	O (3pin Y.W.R)	O	O	O (3pin Y.W.R)	O (3pin Y.W.R)	O (3pin Y.W.R)
ADDITIONAL REAR INPUT (SAT IN)	×	O (3pin Y.B.B)	O (3pin Y.W.R)	O (3pin Y.W.R)	×	×	×	O (3pin Y.W.R)	×
ADDITIONAL REAR OUTPUT (AUDIO OUT)	×	×	O	O	×	×	O	O	O
SKYDECODER REAR IN/OUT	×	×	×	×	×	×	×	×	O
RCA FRONT LINE INPUT	×	O (3pin Y.B.B)	O (3pin Y.W.R)	O (3pin Y.W.R)	×	×	×	O (3pin Y.W.R)	O (3pin Y.W.R)
MODULATOR SYSTEM	G/K/I	G/K/I	G/K/I	G/K/I	G	G	G	G	G
CLICK SHUTTLE	×	×	×	O	×	×	×	O	O
REMOTE COMMANDER RMT-	V248C	V247	V247C	V247D	V245A	V245A	V245C	V245	V245

TABLE OF CONTENTS

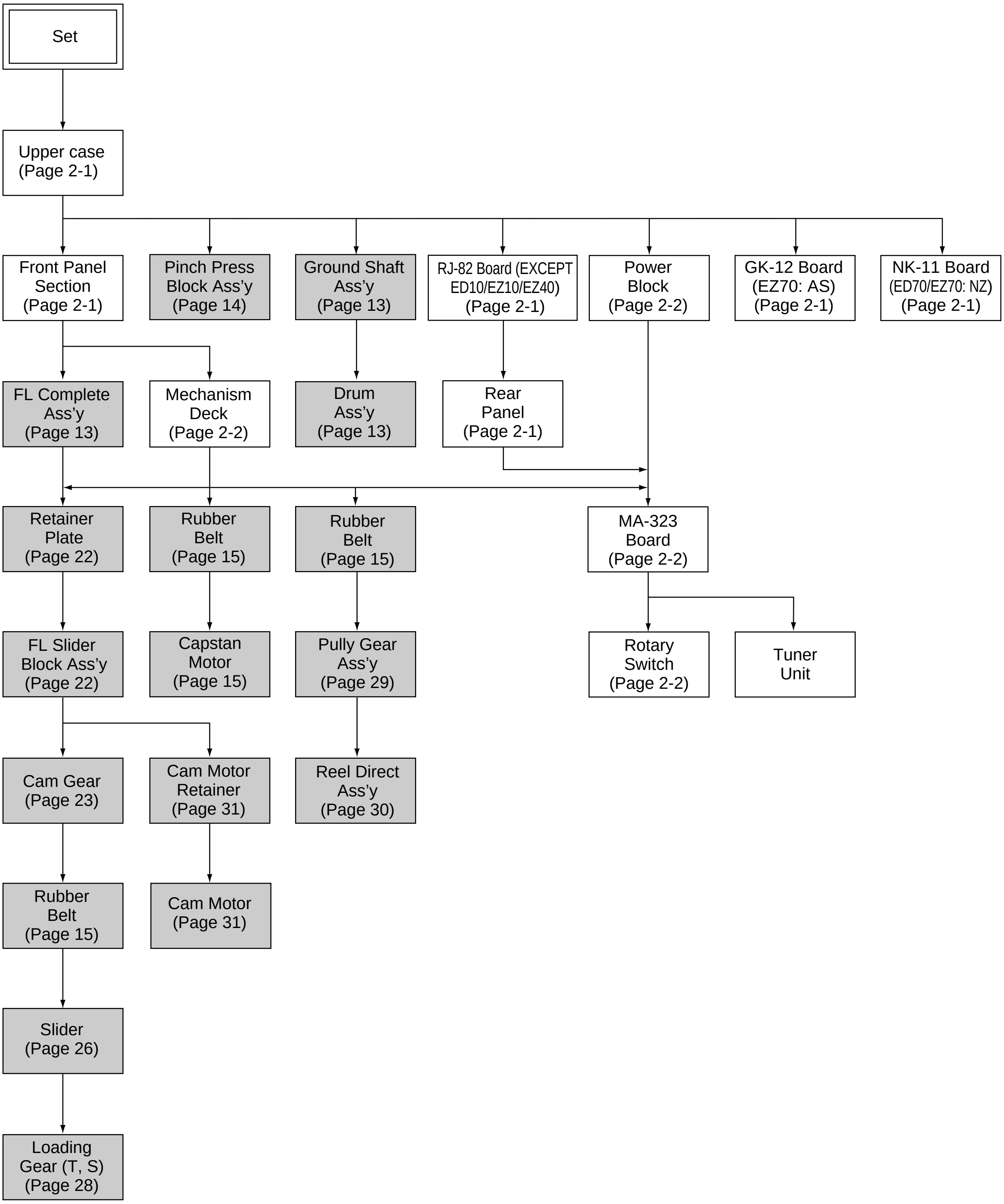
Section	Title	Page
Feature Difference		3
SERVICE NOTE		5
1.	GENERAL	
	Getting Started	1-1
	Basic Operations	1-4
	Additional Operations	1-8
	Editing	1-11
	Additional Information	1-12
2.	DISASSEMBLY	
2-1.	Upper Case Removal	2-1
2-2.	GK-12, NK-11, RJ-82 Board Removal	2-1
2-3.	Rear Panel Removal	2-1
2-4.	Front Panel Section Removal	2-1
2-5.	Power Block Removal	2-2
2-6.	Mechanism Deck Removal	2-2
2-7.	MA-350 board Removal	2-2
2-8.	Internal Views	2-3
2-9.	Circuit Boards Location	2-4
3.	BLOCK DIAGRAMS	
3-1.	Overall Block Diagram	3-1
3-2.	Servo/System Control Block Diagram	3-3
3-3.	Video Block Diagram	3-5
3-4.	Audio Block Diagram	3-7
3-5.	Tuner Block Diagram	3-9
3-6.	Mode Control Block Diagram	3-11
3-7.	Power Block Diagram	3-13
4.	PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS	
4-1.	Frame Schematic Diagram	4-3
4-2.	Printed Wiring Boards and Schematic Diagrams	4-5
	MA-350 Printed Wiring Board	4-5
	MA-350 (Video, Audio) Schematic Diagram	4-9
	MA-350 (System Control) Schematic Diagram	4-13
	MA-350 (Servo Control) Schematic Diagram	4-15
	MA-350 (Hi-Fi Audio) Schematic Diagram	4-17
	MA-350 (I/O) Schematic Diagram	4-19
	MA-350 (Tuner) Schematic Diagram	4-21
	MA-350 (FL Drive) Schematic Diagram	4-23
	MA-350 (Mode Control) Schematic Diagram	4-25
	MA-350 (Power Supply) Schematic Diagram	4-27
	NK-11 Printed Wiring Board and Schematic Diagram	4-29
	GK-12 Printed Wiring Board and Schematic Diagram	4-31
	DM-85 Printed Wiring Board and Schematic Diagrams	4-33
	MF-317 Printed Wiring Board and Schematic Diagram	4-35
	KK-19 Printed Wiring Board and Schematic Diagram	4-37
	DS-85, KK-18 Printed Wiring Boards and Schematic Diagrams	4-39
	RJ-82 Printed Wiring Board and Schematic Diagram	4-41
	HS-921SF/921SF1 Printed Wiring Board	4-43
	HS-921SF/921SF1 Schematic Diagram	4-45
	SR-708/718 Printed Wiring Board	4-47
	SR-708/718 Schematic Diagram	4-49
5.	INTERFACE, IC PIN FUNCTION DESCRIPTION	
5-1.	System Control-Video Block Interface (MA-350 BOARD IC161)	5-1
5-2.	System Control-Servo Peripheral Circuit Interface (MA-350 BOARD IC161)	5-1
5-3.	System Control-Mechanism Block Interface (MA-350 BOARD IC161)	5-2
5-4.	System Control-Audio Block Interface (MA-350 BOARD IC161)	5-3
5-5.	Servo/System/Tuner/Timer/MODE Control, OSD Microprocessor Pin Function (MA-350 BOARD IC161)	5-4
5-6.	NICAM Processor Pin Function (NK-11 BOARD IC1)	5-5
5-7.	ZWEITON Processor Pin Function (GK-12 BOARD IC001)	5-5
6.	ERROR CODES	6-1
7.	ADJUSTMENTS	
7-1.	Mechanical Adjustments	7-1
7-2.	Electrical Adjustments	7-1
2-1.	Pre-Adjustment Preparations	7-1
2-1-1.	Instruments to be Used	7-1
2-1-2.	Connection	7-1
2-1-3.	Set-up of Adjustment	7-1
2-1-4.	Alignment Tapes	7-1
2-1-5.	Specified I/O Level and Impedance	7-1
2-1-6.	Adjusting Sequence	7-2
2-2.	Power Supply Adjustments	7-2
2-2-1.	Power Supply Check	7-2
2-2-2.	+6 V Adjustment	7-2
2-3.	Servo System Adjustment	7-2
2-3-1.	RF Switching Position Adjustment	7-2
2-4.	Audio System Adjustments	7-3
2-4-1.	Hi-Fi Audio System Adjustment	7-3
1.	AF Switching Position Adjustment	7-3
2.	Frequency Response Check	7-3
3.	Overall Level Characteristic and Distortion Factor Check	7-4
4.	Overall S/N Check	7-4
2-4-2.	Normal Audio System Adjustment	7-4
1.	ACE Head Adjustment	7-4
2.	E-E Output Level Check	7-4
3.	Frequency Responce Check	7-4
4.	Overall Level Characteristic and Distortion Factor Check	7-5
5.	Overall S/N Check	7-5
2-5.	Tuner System Adjustment	7-5
2-5-1.	Separation Adjustment	7-5
2-6.	Parts Arrangement Diagram for Adjustments	7-6
8.	REPAIR PARTS LIST	
8-1.	Exploded Views	8-1
8-1-1.	Front Panel and Cabinet Assemblies (ED10/EZ10)	8-1
8-1-2.	Chassis Assembly (ED10/EZ10)	8-2
8-1-3.	Front Panel and Cabinet Assemblies (ED40/ED60/ED70/EZ40/EZ60/EZ70)	8-3
8-1-4.	Chassis Assembly (ED40/ED60/ED70/EZ40/EZ60/EZ70)	8-5
8-1-5.	Mechanism Chassis Assembly (1)	8-6
8-1-6.	Mechanism Chassis Assembly (2)	8-7
8-1-7.	Mechanism Chassis Assembly (3)	8-8
8-2.	Electrical Parts List	8-9

SERVICE NOTE

1. DISASSEMBLY

• This set can be disassembled in the order shown below.

Note: Pages in ☐ indicated pages in the SERVICE MANUAL.
Pages in ▭ (shaded) indicated pages in the VHS MECHANICAL ADJUSTMENT MANUAL VI.



SECTION 1
GENERAL

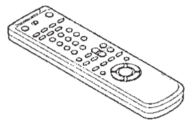
This section is extracted from SLV-ED70MN instruction manual. (3-865-382-11)

Step 1

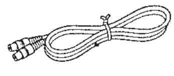
Unpacking

Check that you have received the following items with the VCR:

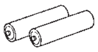
- Remote commander



- Aerial cable



- R6 (size AA) batteries



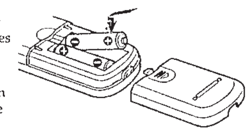
Step 2

Setting up the remote commander

Inserting the batteries

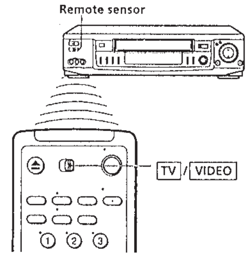
Insert two R6 (size AA) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.

Insert the negative (–) end first, then push in and down until the positive (+) end clicks into position.



Using the remote commander

You can use this remote commander to operate this VCR and a Sony TV. Buttons on the remote commander marked with a dot (•) can be used to operate your Sony TV. If the TV does not have the ▣ symbol near the remote sensor, this remote commander will not operate the TV.



To operate	Set TV/VIDEO to
the VCR	VIDEO and point at the remote sensor on the VCR
a Sony TV	TV and point at the remote sensor on the TV

Notes

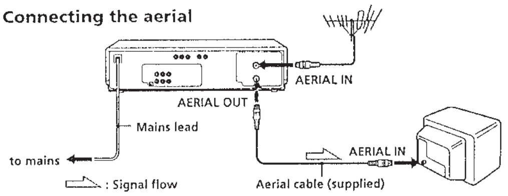
- The TV/VIDEO button selects an input source of the TV from either aerial in or line in. The button does not control this VCR.
- With normal use, the batteries should last about three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use different types of batteries.

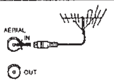
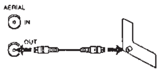
Step 3

Connecting the VCR

Connect the aerial to your VCR and TV as shown below to watch TV programmes and VCR pictures on your TV. In addition, if your TV has audio/video (A/V) input jacks, we recommend you connect the VCR to your TV using an audio/video cable to get a better picture and sound.

Connecting the aerial



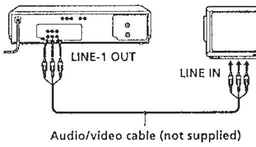
1	Disconnect the aerial cable from your TV and connect it to AERIAL IN on the rear panel of the VCR.	
2	Connect AERIAL OUT of the VCR and the aerial input of your TV using the supplied aerial cable.	
3	Connect the mains lead to the mains.	

Additional connections

To a TV that has audio/video input jacks

This additional connection improves picture and sound quality. Connect the TV as shown on the right.

If you want to use the Trinitron TV Synchro Play function (see page 22), this connection is necessary. (If your TV has two or more inputs, connect the audio/video cable to the VIDEO IN 1 jacks.)

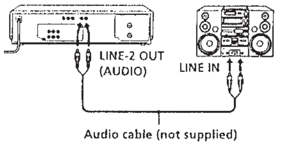


To a stereo system

You can improve sound quality by connecting a stereo system as shown on the right.

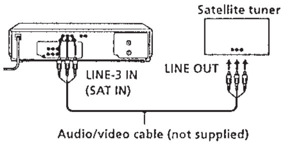
Note

- To listen to playback sounds in stereo, you must use either of the connections above.



To a satellite tuner

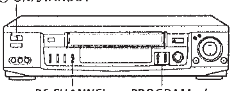
You can record programmes from other equipment such as a satellite tuner.



Step 4

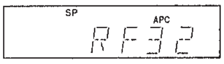
Tuning your TV to the VCR

If you have connected your VCR to the TV using the audio/video cable, skip this step.



1 Press I/⏻ ON/STANDBY to turn on the VCR.

2 Press RF CHANNEL on the VCR.
The factory-preset RF channel appears in the display window.
The VCR signal is output through this channel to the TV.

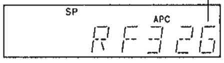


3 Turn on your TV and select a programme position for the VCR picture.
This channel will now be referred to as the video channel.
Some TV has the programme position, such as 0, that is reserved for a VCR. In this case, select that programme position for the VCR picture. Refer to the instruction manual of your TV for details.

4 Press RF CHANNEL.
The TV system indicator appears in the display window.
Press PROGRAM +/– to select the correct TV system.

If your TV system is	Select
B/G	G
I	I
D/K	K

Selected TV system



5 Tune the TV to the same channel as that shown in the display window so that the picture on the right appears on the TV screen.
Refer to your TV manual for tuning instructions.
If the picture does not appear clearly, see "To obtain a clear picture from the VCR" below.

6 Press RF CHANNEL.
You have now tuned your TV to the VCR. From now on, whenever you want to play a tape, set the TV to the video channel.

Getting Started

To obtain a clear picture from the VCR

If the picture does not appear clearly in step 5 above, go to step 6 to finish this procedure once. Then start from step 2. After pressing RF CHANNEL in step 2 to display the RF channel, press PROGRAM +/– so that another RF channel appears. Then tune the TV to the new RF channel until a clear picture appears.

If you cannot obtain a clear picture after performing this procedure, we recommend you connect the VCR and TV using the audio/video cable (see "To a TV that has audio/video input jacks" on page 6). If the same symptom persists, consult your nearest Sony dealer.

Note

- If you set the wrong TV system, you may have no sound or sound may be distorted (noisy sound).

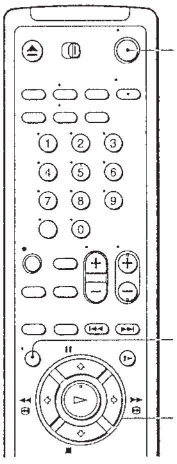
Step 5

Selecting a language

You can change the on-screen display language from English to Arabic.

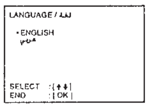
Before you start...

- Turn on your TV and set it to the video channel.

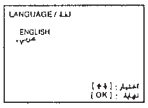


1 Press ON/STANDBY to turn on the VCR.

2 Press MENU, then press ↑/↓ to move the cursor (▶) to LANGUAGE and press OK.



3 Press ↑/↓ to select the desired language, then press OK.

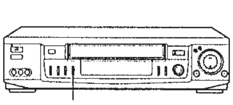


Step 6

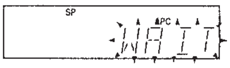
Presetting channels

First, we recommend that you preset the receivable channels in your area using the one touch tuning or the AUTO PRESET in the TUNER PRESET menu. Then, if some channels could not be preset automatically, set them manually; if there are any unwanted channels among the preset ones, you can disable the channels.

Presetting all receivable channels using one touch tuning



1 Press ONE TOUCH TUNING on the VCR for more than 3 seconds.
The VCR starts the channel presetting.



The WAIT indicator goes off when all receivable channels are preset.

To check if the channels are preset correctly

Set the TV to the video channel and press PROGRAM +/– on the VCR. If the TV screen changes to a different programme each time you press PROGRAM +/–, the channels are preset correctly.

If the sound is distorted or noisy, the VCR is set to a TV system different from your area's. Select the TV system and preset channels using the TUNER PRESET menu on the next page.

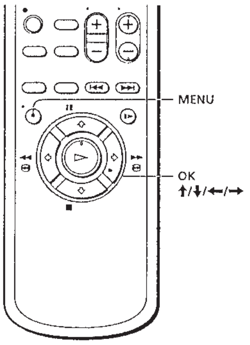
Tip

- To stop one touch tuning, press ONE TOUCH TUNING or ■ STOP on the VCR during the setting.

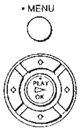
continued

Presetting all receivable channels automatically

Before you start...
- Turn on the VCR and the TV.
- Set the TV to the video channel.



1 Press MENU, then press ↑/↓ to move the cursor (▶) to TUNER PRESET and press OK.



```
TUNER PRESET           PROG 1
 SYSTEM        •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
▶CHANNEL SET      1
 AFT            •ON     OFF
 FINE TUNING
SELECT  :[↑↓]
SET     :[←→]
```

2 Press ↑/↓/←/→ to move the cursor (▶) to SYSTEM, then select B/G, D/K or I, whichever is applicable in your area. If SYSTEM is set to the wrong position, the sound will be distorted or noisy.

```
TUNER PRESET           PROG 1
▶SYSTEM        •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
 CHANNEL SET      1
 AFT            •ON     OFF
 FINE TUNING
SELECT  :[↑↓]
SET     :[←→]
```

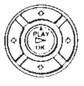
3 Press ↑/↓/←/→ to move the cursor (▶) to NORMAL/CATV, then select NORM.

To preset CATV channels, select CATV.

```
TUNER PRESET           PROG 1
 SYSTEM        •B/G  D/K  I
▶NORMAL / CATV  •NORM  CATV
 AUTO PRESET
 CHANNEL SET      1
 AFT            •ON     OFF
 FINE TUNING
SELECT  :[↑↓]
SET     :[←→]
```


4 Press ↑/↓ to move the cursor (▶) to AUTO PRESET, then press OK.

All receivable channels are preset in numerical sequence. When no more receivable channels can be found, presetting stops and the picture from the lowest numbered channel is displayed on the TV screen.

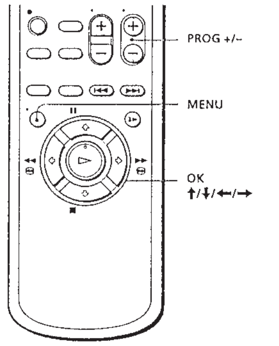


```
TUNER PRESET           PROG 1
 SYSTEM        •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
▶AUTO PRESET
 CHANNEL SET      1
 AFT            •ON     OFF
 FINE TUNING
PLEASE WAIT
```

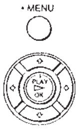
Getting Started

continued

Presetting channels manually



1 Press MENU, then press ↑/↓ to move the cursor (▶) to TUNER PRESET and press OK.



```
TUNER PRESET          PROG10
 SYSTEM        •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
▶CHANNEL SET     21
 AFT            •ON     OFF
 FINE TUNING
SELECT  :[↑↓]
SET     :[←→]
```

2 Press ↑/↓/←/→ to move the cursor (▶) to NORMAL/CATV, then select NORM.

To preset CATV channels, select CATV.

```
TUNER PRESET          PROG10
 SYSTEM        •B/G  D/K  I
▶NORMAL / CATV  •NORM  CATV
 AUTO PRESET
 CHANNEL SET     21
 AFT            •ON     OFF
 FINE TUNING
SELECT  :[↑↓]
SET     :[←→]
```

3 Press ↑/↓ to move the cursor (▶) to CHANNEL SET.

```
TUNER PRESET          PROG10
 SYSTEM        •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
▶CHANNEL SET     21
 AFT            •ON     OFF
 FINE TUNING
SELECT  :[↑↓]
SET     :[←→]
```


4 Press PROG +/– to select the programme position.

Selected programme position

```
TUNER PRESET          PROG14
 SYSTEM        •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
▶CHANNEL SET     21
 AFT            •ON     OFF
 FINE TUNING
SELECT  :[↑↓]
SET     :[←→]
```

5 Press → repeatedly until the channel you want is displayed.
Pressing ← goes back to the previous channels.

The channels are scanned in the following order:

```
TUNER PRESET          PROG14
 SYSTEM        •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
▶CHANNEL SET     35
 AFT            •ON     OFF
 FINE TUNING
SELECT  :[↑↓]
SET     :[←→]
```

Channel coverage	System B/G	System D/K	System I
VHF	E2–E12	R1–R12	SA4–SA13
UHF	E21–E69	R21–R69	B21–B69
CATV (TV distribution)	S1–S41, S01–S05	–	S1–S41, S01–S05

If you know the number of the channel you want, press the programme number buttons. For example, for channel 5, first press "0" and then press "5."

6 If the TV sound is distorted or noisy, press ↑/↓/←/→ to move the cursor (▶) to SYSTEM, then select B/G, D/K or I whichever is applicable in your area.

```
TUNER PRESET          PROG14
▶SYSTEM        •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
 CHANNEL SET     35
 AFT            •ON     OFF
 FINE TUNING
SELECT  :[↑↓]
SET     :[←→]
```

7 To allocate another channel to another programme position, repeat steps 4 and 5.

8 Press OK.

Getting Started

continued

Disabling unwanted programme positions

After tuning the TV channels, you can disable unused programme positions. The disabled positions will be skipped later when you press the PROG +/– buttons.

1 In step 5 on page 15, press programme number button "0" twice to display the number "0" beside CHANNEL SET.

2 Press OK.

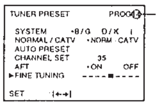
If the picture is not clear

Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. If, however, the picture is not clear, you may also use the manual tuning function.

1 Press PROG +/– to select the programme number for which you cannot obtain a clear picture.

2 Press MENU, then select TUNER PRESET and press OK.

3 Select FINE TUNING. The fine tuning meter appears.



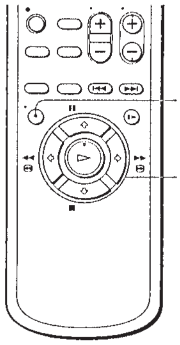
4 Press ←/→ to get a clearer picture, then press OK.
Note that the AFT (Auto Fine Tuning) setting switches to OFF.

Note
- The menu disappears automatically if you do not proceed for more than a few minutes.

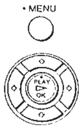
Step 7
Setting the clock

You must set the time and date on the VCR to be able to use the timer recording features properly.

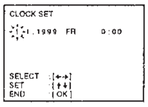
Before you start...
- Turn on the VCR and the TV.
- Set the TV to the video channel.



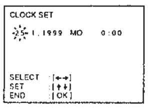
Getting Started

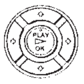
1 

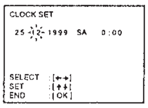
Press MENU, then press ↑/↓ to move the cursor (▶) to CLOCK SET and press OK.



2
Press ↑/↓ to set the date.
The day of the week is set automatically.

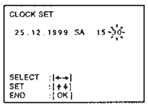


3 
Press → to flash the month and set the month using ↑/↓.



continued

4
Set the year, hour and minutes in sequence, using → to flash the item to be set, and ↑/↓ to select the digits.

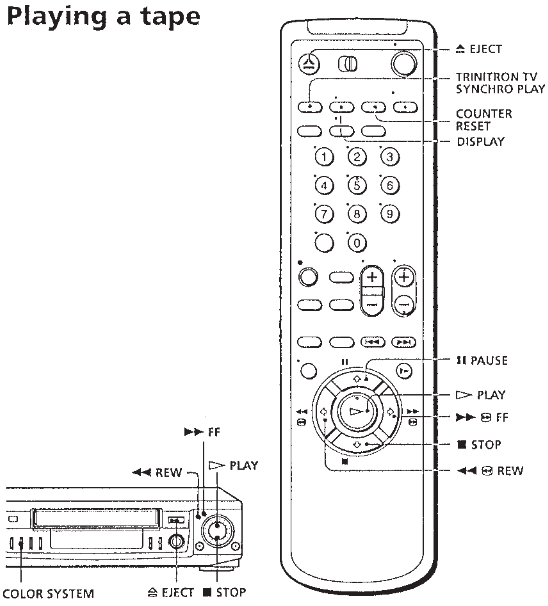


5
Press OK to start the clock.

Tip
- To change the digits during setting, press ← to return to the item to be changed, and select the digits using ↑/↓.

Note
- The menu disappears automatically if you do not proceed for more than a few minutes.

Playing a tape



Basic Operations

1 Turn on your TV and set it to the video channel.

2 Insert a tape.
The VCR turns on and starts playing automatically if you insert a tape with its safety tab removed.

continued

3

Press ▷ PLAY.

When the tape reaches the end, it will rewind automatically.

Additional tasks

To	Press
Stop play	■ STOP
Pause play	❚❚ PAUSE
Resume play after pause	❚❚ PAUSE or ▷ PLAY
Fast-forward the tape	►► ⊛ FF (►► FF on the VCR) during stop
Rewind the tape	◄◄ ⊛ REW (◄◄ REW on the VCR) during stop
Eject the tape	≜ EJECT

To set the colour system

If streaks appear during playback, press COLOR SYSTEM on the VCR to conform to the system that the tape was recorded in. (Normally, the colour system is correctly set whenever the tape is inserted.)

If your tape was recorded in	Press COLOR SYSTEM until the indication below appears in the display window.
PAL	PAL
MESECAM	PAL
NTSC	NTSC

To play an NTSC-recorded tape

Set NTSC PB at the rear of the VCR according to the colour system of your TV.

If your TV is	Set NTSC PB to
PAL	ON PAL TV
NTSC 4.43	NTSC 4.43
NTSC 3.58	NTSC 3.58

To use the time counter

At the point on the tape that you want to find later, press COUNTER RESET. The counter in the display window resets to "0:00:00." Search for the point afterwards by referring to the counter.

To display the counter on the TV screen, press DISPLAY.

Notes
- The counter resets to "0:00:00" whenever a tape is reinserted.
- The counter stops counting when it comes to a portion with no recording.
- If a tape has portions recorded in both PAL and NTSC systems, the time counter reading will not be correct. This is due to the difference between the counting cycles of the two colour systems.
- Depending on your TV, the following may occur while playing an NTSC-recorded tape:
  - the picture is black and white
  - the picture shakes
  - no picture appears on the TV screen
  - black streaks appear horizontally on the TV screen
  - the colour density increases or decreases.
- Tapes recorded in the LP mode of NTSC system on other VCRs can be played back on this VCR, but the picture quality cannot be guaranteed.
- While setting the menu on the TV screen, you cannot use the ▷ PLAY, ❚❚ PAUSE, ►► ⊛ FF, ◄◄ ⊛ REW or ■ STOP button. These buttons are used for menu operations.

continued

Turning on the VCR and TV, and starting playback automatically (Trinitron TV Synchro Play)

You can only use this function if your TV is made by Sony (Trinitron TV).

How to connect to use this function

Connect the VCR and TV with the audio/video cable (see "To a TV that has audio/video input jacks" on page 6). Be sure to connect the audio/video cable to the VIDEO IN 1 jacks on the TV if the TV has two inputs or more. The TV must be placed where it will respond to the remote commander while you are pointing it at the VCR.

Operation

Make sure that the TV's main power is on.

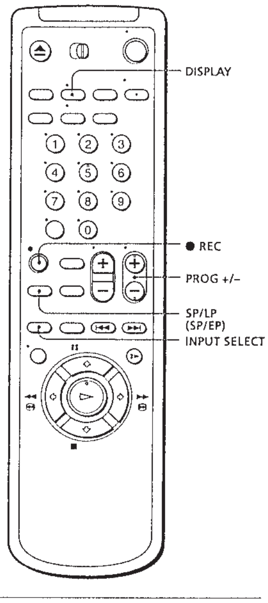
Press TRINITRON TV SYNCHRO PLAY and hold the remote commander in place for about two seconds.

The VCR and TV turn on, and the TV is set to VCR reception. If there is a tape in the VCR, playback starts automatically.

Notes
- If the Trinitron TV Synchro Play function does not work properly:
  - Wait a few moments, and press the button again.
  - Replace both of the batteries with new ones, and press the button again.

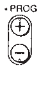
  Note that this function may not operate some Sony TVs because of the remote commander's signal limitations.
- Do not press TRINITRON TV SYNCHRO PLAY while playing back a video tape. If you do so, the TV's input source will momentarily switch to the TV's tuner.

Recording TV programmes

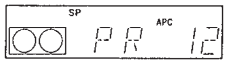


1 Turn on your TV and set it to the video channel.

2 Insert a tape with its safety tab in place.

3 

Press PROG +/– to select the programme position you want to record.

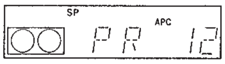


continued

4 SP/LP (SP/EP)

Press SP/LP (SP/EP) to select the tape speed, SP or LP.

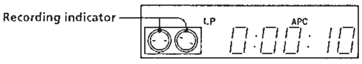
LP (Long Play) provides recording time twice as long as SP (Standard Play), however, SP produces better picture and audio quality.



5 ● REC

Press ● REC to start recording.

The recording indicator lights up red in the display window.

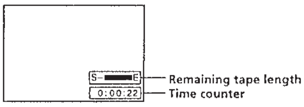


To stop recording

Press ■ STOP.

To check the remaining tape length

Press DISPLAY. The white bar indicates the approximate length of tape remaining.



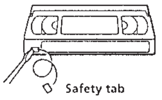
To watch another TV programme while recording

1 If the TV is connected to the VCR using an audio/video cable, set the TV to TV input. If the TV is connected to the VCR using only the aerial cable, skip this step.

2 Select another programme position on the TV.

To save a recording

To prevent accidental erasure, break off the safety tab as illustrated. To record on a tape again, cover the tab hole with adhesive tape.



To record NTSC colour system programmes

NTSC colour signals can be recorded on this VCR from the LINE-1 IN, LINE-2 IN and LINE-3 IN (SAT IN) jacks only.

To select the line input, press INPUT SELECT or PROG +/– so that "L1", "L2" or "L3" appears in the display window.

For tape speed, select SP or EP in step 4.

EP provides recording time three times as long as SP, however, SP produces better picture and sound quality.

When playing back, the VCR automatically detects the tape speed.

Tips

- To select a programme position, you can use the programme number buttons on the remote commander. For two-digit numbers, press the -/-- (ten's digit) button followed by the programme number buttons.
- You can select a video source from the LINE-1 IN, LINE-2 IN or LINE-3 IN (SAT IN) jacks. Press INPUT SELECT or PROG +/– to display "L1", "L2" or "L3" in the display window.
- The display appears on the TV screen indicating information about the tape, but the information will not be recorded on the tape.
- If you do not want to watch TV while recording, you can turn off the TV.

Notes

- The display does not appear during still (pause) mode or slow-motion playback.
- It may take up to one minute for the VCR to calculate and display the remaining tape length after you press DISPLAY.
- The remaining tape length does not appear while playing or recording in NTSC system.

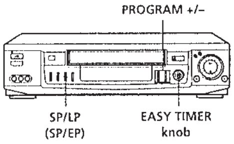
Recording TV programmes using the easy timer

You can record one programme on the same day (within 24 hours) with the easy timer. If the VCR clock has not been set, you can set the clock before setting the timer recording.

Setting the easy timer

Before you start...

- Insert a tape with its safety tab in place. Make sure the tape is longer than the recording time.
- If you want to see the setting on the TV screen, turn on the TV and set it to the video channel.

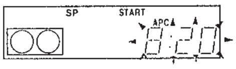


1 EASY TIMER

Press the EASY TIMER knob.

The START indicator appears in the display window.

If the clock has not been set, "-:- -" appears. Go to step 2 in "Setting or changing the easy clock" on page 28.



2 EASY TIMER

Set the recording start time by turning the EASY TIMER knob clockwise or counterclockwise to increase or decrease the time by 15 minutes.

To increase or decrease the time by one minute, press PROGRAM +/–.

3 EASY TIMER

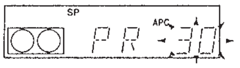
Press the EASY TIMER knob to confirm the start time setting.

The STOP indicator appears.

4 EASY TIMER

Set the recording stop time in the same way as in step 2, then press the EASY TIMER knob.

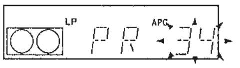
A programme number flashes.



5 EASY TIMER

Turn the EASY TIMER knob clockwise or counterclockwise to select the programme you want to record.

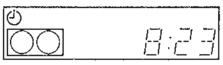
To select the tape speed, press SP/LP (SP/EP).



6 EASY TIMER

Press the EASY TIMER knob to confirm the setting.

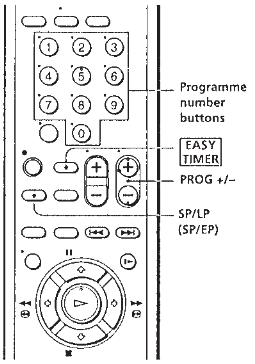
The ⌚ indicator appears in the display window and the VCR stands by for recording.

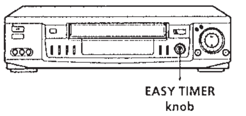


continued

Setting or changing the easy clock

You can set or change the clock setting using the easy clock.



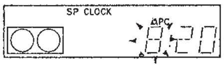


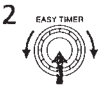
1

To change the clock setting, press the EASY TIMER knob on the VCR for more than three seconds.

The CLOCK indicator and the current clock setting appear in the display window.

If the clock has not been set yet, "–:– –" appears in the display window.



2 

Set the current time using the EASY TIMER knob.

1 Turn the EASY TIMER knob clockwise or counterclockwise to enter the current hour.
2 Press the EASY TIMER knob to confirm the hour setting.
3 Turn the EASY TIMER knob to increase or decrease the minutes setting by a minute.

3

Press the EASY TIMER knob to confirm the clock setting.

The VCR enters the timer recording setting mode.

To continue the easy timer setting, go to step 2 in "Setting the easy timer" on page 26.

To quit the easy timer setting mode without changing any settings, press the EASY TIMER knob repeatedly until the ⏲ indicator appears in the display window.

To set the timer and clock setting using the remote commander

You can also use the remote commander to set the easy timer and easy clock. The operations on the VCR and the remote commander correspond as follows:

To	Do this on the VCR	Do this on the remote commander
Confirm the setting and go to the next setting	Press EASY TIMER knob	Press EASY TIMER
Change the time by 15 minutes (in START/STOP mode)	Turn EASY TIMER knob or hold PROGRAM +/– down	Hold PROG +/– down
Change the time by one minute (in START/STOP mode)	Press PROGRAM +/–	Press PROG +/–
Select the programme	Turn EASY TIMER knob or press PROGRAM +/– or INPUT SELECT	Press PROG +/– or INPUT SELECT
Change the hour/minute by one hour/minute (in CLOCK mode)	Turn EASY TIMER knob or press PROGRAM +/–	Press PROG +/–

You can also use the programme number buttons to set the clock, start and stop times, and the programme you want to record. Just press the programme number buttons to enter the hours and minutes. For example:

- To set the clock to "8:20", press 0, 8, EASY TIMER, 2, 0 and EASY TIMER in sequence.
- To set the start or stop time to "8:20", press 0, 8, 2, 0 and EASY TIMER in sequence.

If you make a mistake, re-enter the correct digits before pressing EASY TIMER.

continued

To stop recording

To stop the VCR while recording, press ■ STOP.

To check or change the timer setting

Press EASY TIMER knob repeatedly until the setting you want to check or change flashes. Then re-enter the new setting, if necessary. If you do not want to change any of the settings, press the EASY TIMER knob repeatedly until the ⏲ indicator appears in the display window.

You can also change the timer setting using the TIMER SET/CHECK menu. For details, see page 39.

To use the VCR after setting the timer

To use the VCR before a timer recording begins, just press ON/STANDBY. The ⏲ indicator turns off and the VCR switches on. Remember to press ON/STANDBY to reset the VCR after using the VCR.

You can also do the following tasks while the VCR is recording:

- Reset the counter.
- Display tape information on the TV screen.
- Check the timer settings.
- Watch another TV programme.

Tips

- To record from a source connected to LINE-1 IN, LINE-2 IN or LINE-3 IN (SAT IN) jacks, press INPUT SELECT or PROG +/– or turn the EASY TIMER knob to display "L1", "L2" or "L3" in the display window.
- To record NTSC signals, set the tape speed to SP or EP. To set to the EP mode, display "LP" in the display window.
- To cancel the easy timer setting, press CLEAR on the remote commander or press PROGRAM + and – on the VCR at the same time during any of the easy timer setting.

Notes

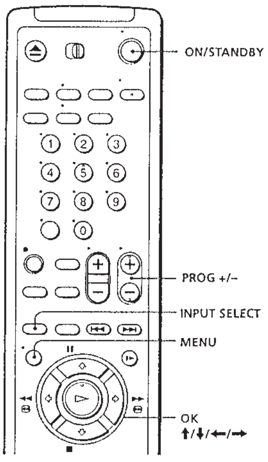
- You cannot set the easy timer if eight programmes have already been set.
- You can set the timer for only one programme using the easy timer. If you want to set the timer for other programmes, use the TIMER SET/CHECK menu. For details, see page 31.
- You cannot set the date using the easy timer. Set the date using the CLOCK SET menu if you want to set the timer with the menu. For details, see page 17.
- The ⏲ indicator flashes in the display window when you set the timer with no tape inserted.

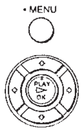
Setting the timer manually

You can preset up to eight programmes at a time.

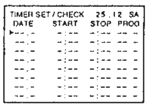
Before you start...

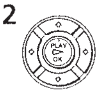
- Check that the VCR clock is set to the correct time.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and set it to the video channel.



1 

Press MENU and select TIMER SET/CHECK, then press OK.

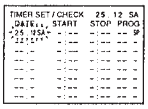


2 

Set the date, start and stop times, programme position, and tape speed:

1 Press → to flash each item in turn.
2 Press ↑/↓ to set each item.

To correct a setting, press ← to return to that setting and reset.

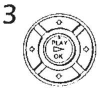


continued

To record the same programme every day or the same day every week, press ↓ while the date is flashing. For details, see "Daily/weekly recording" below.

To record from a source connected to the LINE-1 IN, LINE-2 IN or LINE-3 IN (SAT IN) jacks; press INPUT SELECT or PROG +/– to display "L1", "L2" or "L3" in the "PROG" position.

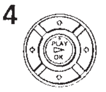
3



Press → to confirm the setting.

The cursor (▶) appears at the beginning of the line. To enter another setting, move the cursor to the next line and repeat step 2.

4



Press OK.

5

Press ON/STANDBY to turn off the VCR.

The ⏲ indicator appears in the display window and the VCR stands by for recording.

To record from other equipment, leave the connected equipment switched on.

To stop recording

To stop the VCR while recording, press ■ STOP.

Daily/weekly recording

In step 2 above, press ↓ to select the recording pattern. Each time you press ↓, the indication changes as shown below. Press ↑ to change the indication in reverse order.

the current date → SU-SA (Sunday to Saturday) → MO-SA (Monday to Saturday) → MO-FR (Monday to Friday) → EVERY SA ..... → EVERY MO → EVERY SU → 1 month later → (dates count down) → the current date

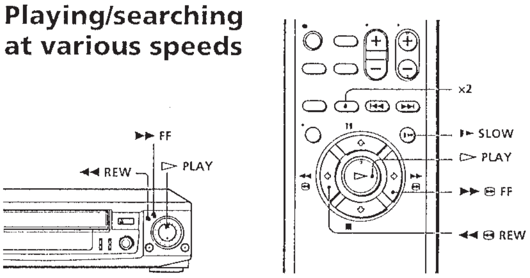
Tips

- To set the programme position, you can also use the PROG +/– or programme number buttons.
- To set the tape speed, you can also use SP/LP (SP/EP).
- To record NTSC signals, set the tape speed to SP or EP. To set to the EP mode, display "LP" in the tape speed position.

Note

- The ⏲ indicator flashes in the display window when you press ON/STANDBY with no tape inserted.

Playing/searching at various speeds

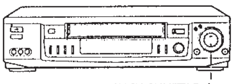


Playback options	Operation
View the picture during fast-forward or rewind	During fast-forward, hold ►► ⊖ FF (►► FF) down. During rewind, hold ◄◄ ⊖ REW (◄◄ REW) down.
Play at high speed	• During playback, press ►► ⊖ FF or ◄◄ ⊖ REW on the remote commander. • During playback, hold ►► ⊖ FF (►► FF) or ◄◄ ⊖ REW (◄◄ REW) down. When you release the button, normal playback resumes.
Play at twice the normal speed	During playback or pause, press ×2.
Play in slow motion	During playback or pause, press I► SLOW.
Play frame by frame	During pause, press ►► ⊖ FF or ◄◄ ⊖ REW on the remote commander. Hold the button down to play one frame each second.
Rewind and start play	During stop, press ▷ PLAY on the VCR while holding ◄◄ REW down on the VCR.

To resume normal playback

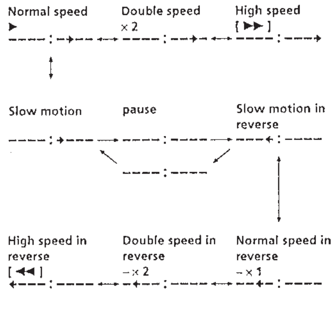
Press ▷ PLAY.

Using the CLICK SHUTTLE ring



With the CLICK SHUTTLE ring, you can operate a variety of playback options.

During playback or pause, turn the CLICK SHUTTLE ring clockwise or counterclockwise. Each change in the CLICK SHUTTLE ring position changes the playback mode, and the corresponding mark appears on the TV screen for a few seconds in the following way if the on-screen display function is on:



Tip

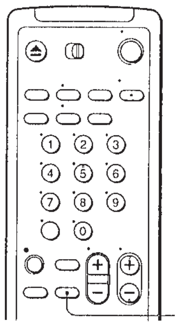
- Adjust the picture using TRACKING +/– on the VCR if:
  – streaks appear while playing in slow motion.
  – the picture shakes while pausing.

  To set tracking to the center position, press both buttons (+/–) at the same time.

Notes

- The playback sound is muted during these operations.
- In LP or EP mode, noise may appear or there may be no colour.
- The picture may have snow when playing at high speed in reverse.
- On screen symbols may shake while playing or searching at various speeds.

Recording TV programmes using the quick timer



After starting recording in the normal way, you can have the VCR stop recording automatically after a specified duration.

1 While recording, press QUICK TIMER once.

The ⏲ indicator appears in the display window.

2 Press QUICK TIMER repeatedly to set the duration.

Each press advances the time in increments of 30 minutes.

→ 0:00 → 0:30 → 1:00 ------→ 10:30 → 11:00 ┐ (returns to 0:00)

The duration decreases minute by minute to 0:00, then the VCR stops recording and turns off automatically.

To extend the duration

Press QUICK TIMER repeatedly to set to the new duration.

To stop recording

To stop the VCR while recording, press ■ STOP.

Using the quick timer during stop mode

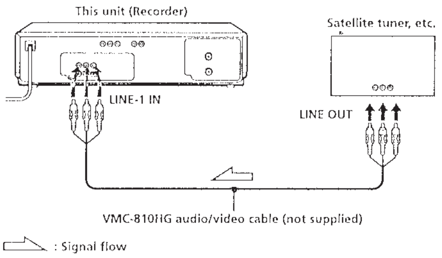
You can set the quick timer and start recording during stop mode by pressing QUICK TIMER. To set the channel, you can use the PROG +/– or INPUT SELECT buttons. Press QUICK TIMER repeatedly to set the recording duration. The recording will start automatically.

Synchronised recording

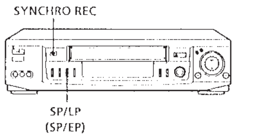
The Synchronised Recording feature enables you to record from the connected equipment such as a satellite tuner, a cable TV decoder or a TV that has a timer function. Once you set the timer on the other equipment, the unit will start recording the programme synchronised with the timer.

How to connect to use this function

Connect the other equipment to the LINE-1 IN jacks of this unit.



To prepare the Synchronised recording



1 Set the timer on the equipment to the time of the programme you want to record, then turn it off.

2 Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.

3 Press SP/LP (SP/EP) to select the tape speed (SP or LP for the PAL colour system, and SP or EP for the NTSC colour system.)

4 Hold SYNCHRO REC down for more than two seconds.

The SYNCHRO REC button lights up and the unit stands by for recording.

The unit automatically turns on and starts recording when it receives video/audio signals from the connected equipment.

To cancel the Synchronised recording

Press SYNCHRO REC so that the button's light turns off.

To stop recording

Press ■ STOP while recording.

The unit automatically stops recording when the tape reaches the end or when the other equipment stops transmitting the video/audio signals.

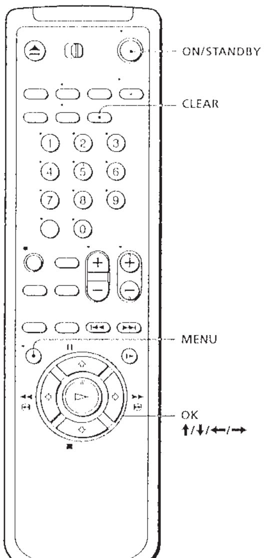
Notes

- Some TVs or other equipment automatically turn off in a certain time if you do not operate it after it turns on with the timer. In this case the Synchronised Recording also stops automatically.
- The Synchronised Recording starts and stops according to the signals from the connected equipment. Refer also to the instruction manual of the connected equipment for its timer function.
- If the settings for Timer Recording and Synchronised Recording overlap, the programme that starts first has priority and the second programme starts recording only after the first programme has finished.

Checking/ changing/ cancelling timer settings

Before you start...

- Turn on your TV and set it to the video channel.



1 Press ON/STANDBY to turn on the VCR.

2 Press MENU, then select TIMER SET/CHECK:

- If you want to change a setting, go on to the next step.
- If you do not need to change the settings, press OK, then turn off the VCR to return to recording standby.

3 Press ↑/↓ to select the setting you want to change or cancel:

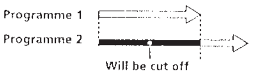
- To change the setting, press ←/→ to flash the item you want to change, and press ↑/↓ to re-set it. Then, press → repeatedly until the cursor (▶) appears at the beginning of the line.
- To cancel the setting, press CLEAR.

4 Press OK.

If any timer settings remain, turn off the VCR to return to recording standby.

When the timer settings overlap

The programme that starts first has priority and the second programme starts recording only after the first programme has finished. If the programmes start at the same time, the programme listed first in the menu has priority.



Recording stereo and bilingual programmes

In ZWEITON (German stereo) system

This VCR automatically receives and records stereo and bilingual programmes based on the ZWEITON system. When a stereo or bilingual programme is received, the STEREO indicator appears in the display window.

To select bilingual sound while recording

Press AUDIO MONITOR to select the sound you want.

To listen to	On-screen display	Display window
Main	MAIN	STEREO
Sub	SUB	STEREO
Main and sub	MAIN/SUB	STEREO

In NICAM system

This VCR receives and records stereo and bilingual programmes based on the NICAM system (the NICAM indicator appears). When a stereo or bilingual programme is received, the STEREO indicator appears in the display window.

To record a NICAM programme, HIFI AUDIO in the SET UP MENU should be set to NICAM (initial setting). To check the menu setting, see page 44 for details.

To select the sound while recording

Press AUDIO MONITOR to select the sound you want.

Stereo programme

To listen to	On-screen display	Display window
Stereo	STEREO	STEREO
Standard sound*	No indicator	No indicator

* Usually the mixed sound of left and right channels (monaural)

Bilingual programme

To listen to	On-screen display	Display window
Main	MAIN	STEREO
Sub	SUB	STEREO
Main and sub	MAIN/SUB	STEREO
Standard sound*	No indicator	No indicator

* Usually the main sound (monaural)

Selecting the sound while playing

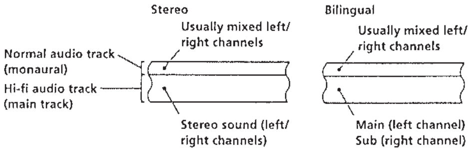
Press AUDIO MONITOR to select the sound you want.

To listen to	On-screen display	Display window
Stereo/main and sub (left and right channels)	STEREO	STEREO
Left channel/main	LCH	STEREO
Right channel/sub	RCH	STEREO
Standard sound*	No indicator	No indicator

* The mixed sound of left and right channels (monaural)

How sound is recorded on a video tape

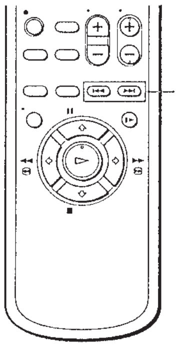
The VCR records sounds onto two separate tracks. Hi-fi audio is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.



Notes

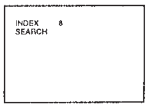
- To listen to playback sounds in stereo, you must use the AUDIO OUT connections.
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.
- If the AUDIO MONITOR button does not function, check that AUDIO MIX in the SET UP MENU is set to OFF.
- If HIFI AUDIO is set to STD, the standard sound will be recorded on both the hi-fi and normal audio tracks. Pressing AUDIO MONITOR will not change the sound.

Searching using the index function



The VCR marks the tape with an index signal at the point where each recording begins. Use these signals as references to find a specific recording. The VCR can search up to 99 index signals ahead of or behind the current position.

1. Insert an indexed tape into the VCR.
2. Press I◀◀ /▶▶I INDEX SEARCH repeatedly to specify how many index signals ahead or behind you want to search:
   - To search ahead, press ▶▶I INDEX SEARCH.
   - To search backwards, press I◀◀ INDEX SEARCH.

   The VCR starts searching and the index number on the TV screen counts down to zero. The playback starts from the point about five seconds ahead of the specified index mark.

To stop searching

Press ■ STOP.

Note

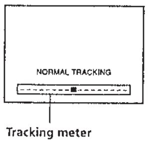
- No index signal will be added when recording starts from recording pause. However, an index signal will be marked if you change the channel during recording pause.

Adjusting the picture

Adjusting the tracking

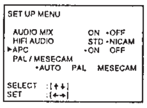
Although the VCR automatically adjusts the tracking when playing a tape (the ⊠ indicator flashes in the display window, then goes off), distortion may occur if the tape was recorded in poor condition. If so, manually adjust the tracking.

Press the TRACKING +/– buttons on the VCR to display the tracking meter. The distortion should disappear as you press one of the two buttons (the ⊠ indicator lights up). To resume automatic tracking adjustment, eject the tape and reinsert it.



About Adaptive Picture Control (APC)

Adaptive Picture Control (APC) automatically improves recording and playback quality by adjusting the VCR to the condition of the video heads and tape. To maintain better picture quality, we recommend that you set APC to ON in the SET UP MENU (with the APC indicator in the display window lit).



APC playback

The APC function automatically works on all types of tapes, including rental tapes and tapes that were not recorded with APC.

APC recording

Whenever you insert a tape and first start recording, the VCR adjusts to the tape using the APC function (the APC indicator flashes rapidly). This adjustment is retained until the tape is ejected.

To deactivate the APC

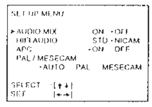
Press MENU and select SET UP MENU, then set APC to OFF. The APC indicator in the display window goes off.

Note

- There is a delay of a few seconds before the VCR actually starts recording while the VCR analyses the tape. To avoid the delay, first set the VCR to recording pause (the APC indicator flashes slowly) and press ● REC to have the VCR analyse the tape (the APC indicator flashes rapidly). After the APC indicator stops flashing, press II PAUSE to start recording immediately. If you press II PAUSE before the APC indicator stops flashing, the APC function is cancelled.

Changing menu options

1 Press MENU, then select SET UP MENU.



2 Press ↑/↓ to select the option to change, then press ←/→ to change the setting.

3 Press OK to return to the original screen.

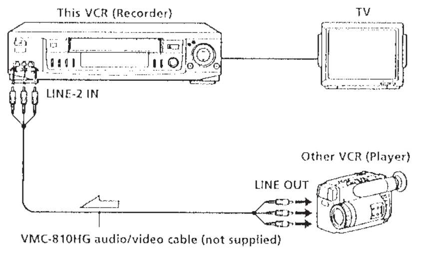
Menu choices

Initial settings are indicated in bold print.

Menu option	Set this option to
AUDIO MIX	**ON** to listen to the hi-fi and normal audio tracks at the same time. The AUDIO MONITOR button will not function. **OFF** to listen to hi-fi and normal audio tracks separately. Select the sound using the AUDIO MONITOR button.
HIFI AUDIO	STD to record standard sound on the hi-fi audio track. **NICAM** to record NICAM broadcasts on the hi-fi audio track. For details, see page 40.
APC	**ON** to switch on the APC (Adaptive Picture Control) function and improve picture quality. OFF to switch off APC.
PAL/MESECAM	**AUTO** to have the VCR automatically select the colour system for recording and playback. If the picture has no colour or unusual colours, set to PAL or MESECAM according to your local colour system.

Connecting to a VCR or stereo system

How to connect to record on this VCR



How to connect to a stereo system

Connect LINE-2 IN AUDIO on this VCR to the audio output jacks on the stereo system, using the RK-C510KS audio cable (not supplied).

Notes

- Make sure you connect the plugs to jacks of the same colour.
- If you connected this VCR to both the LINE IN and LINE OUT jacks of the other VCR, select the input correctly to prevent a humming noise.

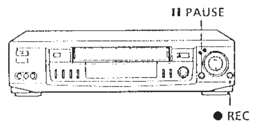
Tips

- If the other VCR is a monaural type and connected to this VCR's LINE-2 IN jacks, connect the audio plug to the AUDIO L (white) jack. The sound is recorded on both right and left channels. When connecting to the AUDIO R (red) jack, the sound is recorded only on the right channel.
- You can also use the LINE-1 IN or LINE-3 IN (SAT IN) jacks instead. If the other VCR is a monaural type, the sound is recorded only on the channel whose jack is connected to the audio plug. To record on both right and left channels, connect the audio plugs to the AUDIO R/L jacks using a VMC-910HG audio/video cable (not supplied).

Basic editing (when recording on this VCR)

Before you start editing

- Turn on your TV and set it to the video channel.
- Press INPUT SELECT or PROG +/– to display "L1", "L2" or "L3" in the display window.
- Press SP/LP (SP/EP) to select the tape speed (SP or LP for the PAL system, and SP or EP for the NTSC system).



1 Insert a source tape with its safety tab removed into the other (playback) VCR. Search for the point to start playback and set it to playback pause.

2 Insert a tape with its safety tab in place into this (recording) VCR. Search for the point to start recording and press II PAUSE.

3 Press ● REC on this VCR and set it to recording pause.

4 To start editing, press the II PAUSE buttons on both VCRs at the same time.

To stop editing

Press the ■ STOP buttons on both VCRs.

Tips

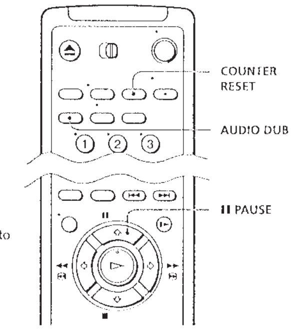
- To edit more precisely, press the II PAUSE buttons on the VCRs to release pause.
- To cut out unwanted scenes while editing, press II PAUSE on this VCR when an unwanted scene begins. When it ends, press II PAUSE again to resume recording.

Note

- If you start recording following the procedure above, the VCR will not start recording with the APC function. To record a tape with the APC function, press ● REC again during recording pause in step 3 so that the VCR analyses the tape. Then when you start recording in step 4, press II PAUSE after the APC indicator stops flashing. If you press II PAUSE before the APC indicator stops flashing, the APC function is cancelled.

Audio dubbing

This feature lets you record over the normal audio track. The monaural sound previously recorded is placed while the original hi-fi sound remains unchanged. Use this feature to add commentary to a tape that you have recorded with a camcorder.



Before you start editing

- Turn on your TV and set it to the video channel.
- Press INPUT SELECT or PROG +/– to display "L1" or "L2" or "L3" in the display window.

1 Insert a source tape into the stereo system (or the playback VCR). Search for the point to start playback and set it to playback pause.

2 Insert a prerecorded tape into this (recording) VCR. Search for the end of the section to be replaced and press II PAUSE.
Make sure that the tape has its safety tab in place.

3 Press COUNTER RESET on this remote commander to reset the counter to "0:00:00."

4 Rewind the prerecorded tape to the beginning of the section to be replaced.
The VCR pauses.

5 Press AUDIO DUB.
The ⊖ indicator appears in the display window.

6 To start editing, press the II PAUSE buttons on this VCR and the stereo system (or other VCR) at the same time.
When the counter reaches "0:00:00" audio dubbing stops automatically.

To stop while editing

Press the ■ STOP buttons on this VCR and the stereo system (or other VCR).

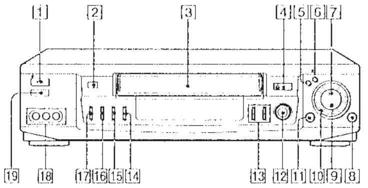
To listen to both the hi-fi and normal audio

Set AUDIO MIX to ON in the SET UP MENU (page 44). Use this feature to listen to dubbed audio over the original hi-fi audio. When AUDIO MIX is set to ON, the AUDIO MONITOR button does not function. Remember to reset AUDIO MIX to OFF after playing the tape.

Index to parts and controls

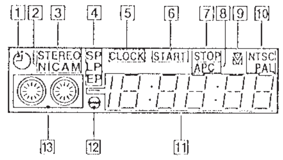
Refer to the pages indicated in parentheses ( ) for details.

Front panel



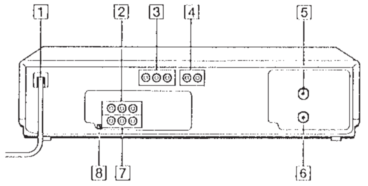
1. I/⏻ ON/STANDBY switch/ indicator (8)
2. SYNCHRO REC button (36)
3. Tape compartment
4. ⏏ EJECT button (20)
5. ◀◀ REW (rewind) button (20, 33)
6. ▶▶ FF (fast-forward) button (20, 33)
7. ▷ PLAY button (20)
8. ● REC (record) button (24)
9. ■ STOP button (20)
10. CLICK SHUTTLE ring (34)
11. ❚❚ PAUSE button (20)
12. EASY TIMER knob (26)
13. PROGRAM/TRACKING +/– buttons (8, 43)
14. ONE TOUCH TUNING/ RF (Radio Frequency) CHANNEL button (8, 11)
15. SP (Standard Play)/LP (Long Play)/ EP (Extra Play) button (24)
16. COLOR SYSTEM button (20)
17. INPUT SELECT button (25)
18. LINE-2 IN VIDEO/AUDIO L/R jacks (45)
19. Remote sensor (5)

Display window



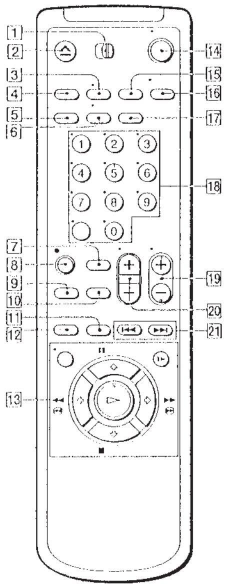
1. Timer indicator (27)
2. NICAM indicator (40)
3. STEREO indicator (40)
4. Tape speed indicator (24)
5. CLOCK indicator (28)
6. START indicator (26)
7. STOP indicator (26)
8. APC (Adaptive Picture Control) indicator (43)
9. Tracking indicator (43)
10. Colour system indicator (20)
11. Time counter/clock/line/ programme/TV system indicator (21, 23, 27, 35)
12. Audio dubbing indicator (47)
13. Tape/recording indicator (24)

Rear panel



1. Mains lead (6)
2. LINE-1 IN AUDIO R/L/VIDEO jacks (40)
3. LINE-3 IN (SAT IN) AUDIO R/L/ VIDEO jacks (7)
4. LINE-2 OUT (AUDIO) AUDIO R/L jacks (7)
5. AERIAL IN connector (6)
6. AERIAL OUT connector (6)
7. LINE-1 OUT AUDIO R/L/VIDEO jacks (6)
8. NTSC PB (playback) switch (20)

Remote commander



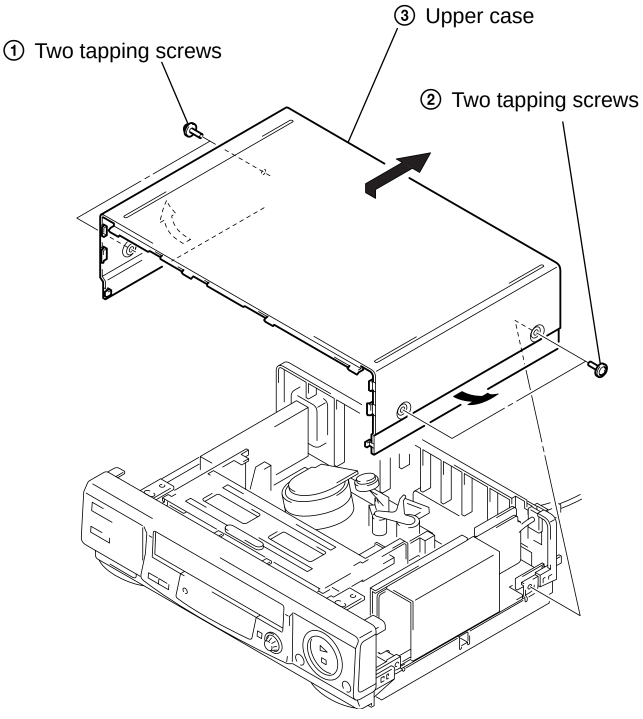
1. [TV] / [VIDEO] remote control switch (5)
2. ⏏ EJECT button (20)
3. DISPLAY button (24)
4. TRINITRON TV SYNCHRO PLAY button (22)
5. AUDIO DUB (dubbing) button (47)
6. TV/VIDEO button *(for TV)* (5)
7. [EASY TIMER] button (29)
8. ● REC button (24)
9. SP (Standard Play)/LP (Long Play)/ EP (Extra Play) button (24)
10. QUICK TIMER button (35)
11. ×2 button (33)
12. INPUT SELECT button (25, 32)
13. Tape/menu operation buttons

    MENU button (10, 44)
    ❚❚ PAUSE/⬆ button (20)
    ■ STOP/⬇ button (20)
    ◀◀ ⊖ REW (rewind)/⬅ button (20, 33)
    ▶▶ ⊕ FF (fast-forward)/➡ button (20, 33)
    ▷ PLAY/OK button (20)
    ❙▶ SLOW button (33)
14. ON/STANDBY button (32)
15. COUNTER RESET buttons (21)
16. AUDIO MONITOR button (40)
17. CLEAR button (39)
18. Programme number /-/-- (ten's digit) buttons (29)
19. PROG (programme) +/– buttons (23)
20. VOL (volume) +/– buttons *(for TV)*
21. ❙◀◀/▶▶❙ INDEX SEARCH buttons (42)

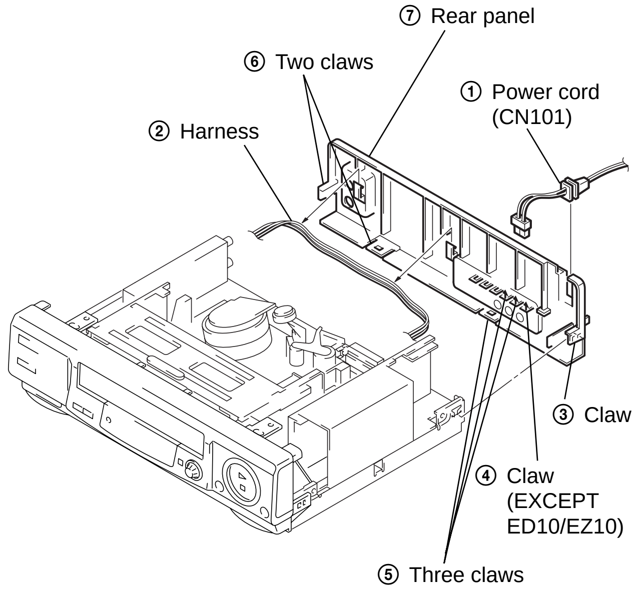
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

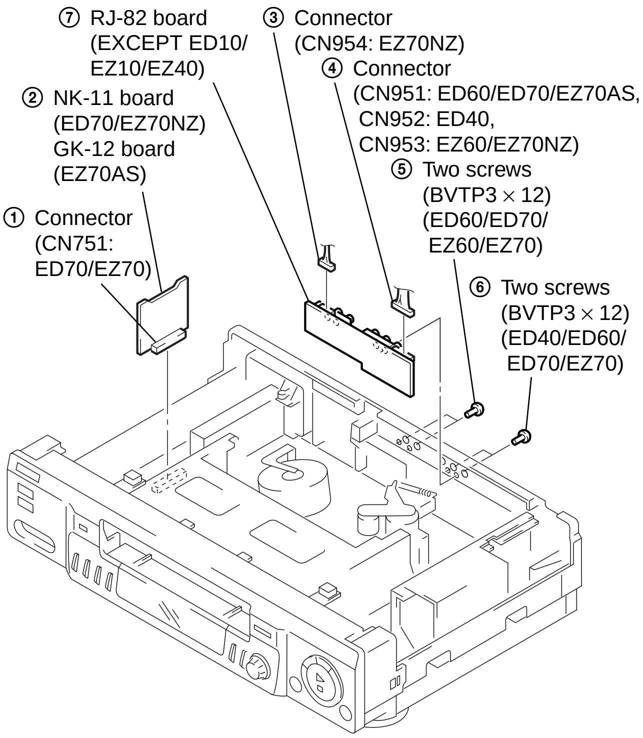
2-1. UPPER CASE REMOVAL



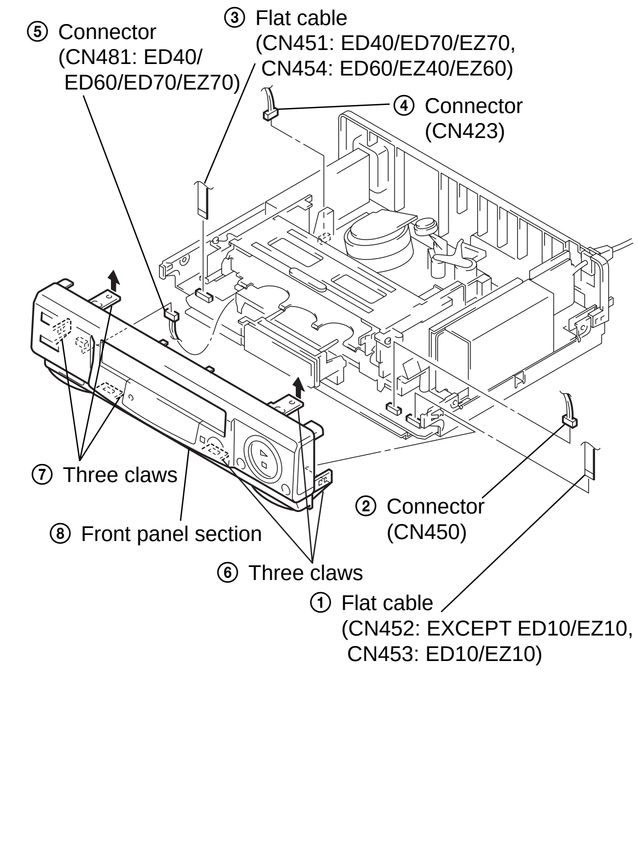
2-3. REAR PANEL REMOVAL



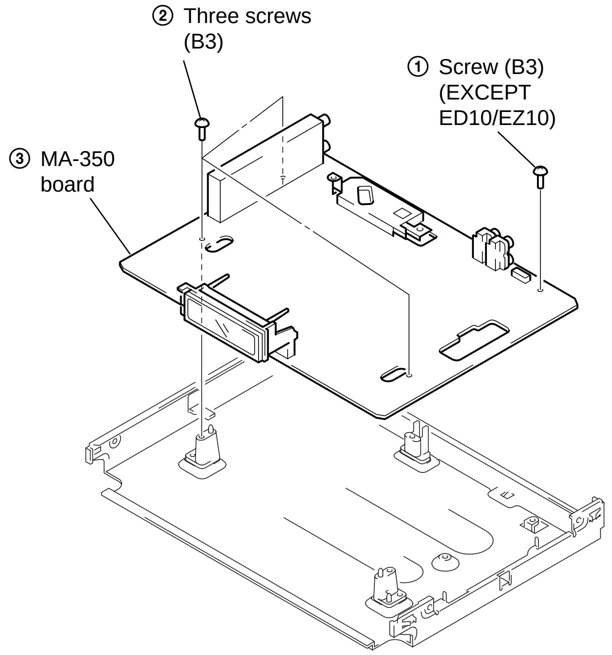
2-2. GK-12, NK-11, RJ-82 BOARD REMOVAL



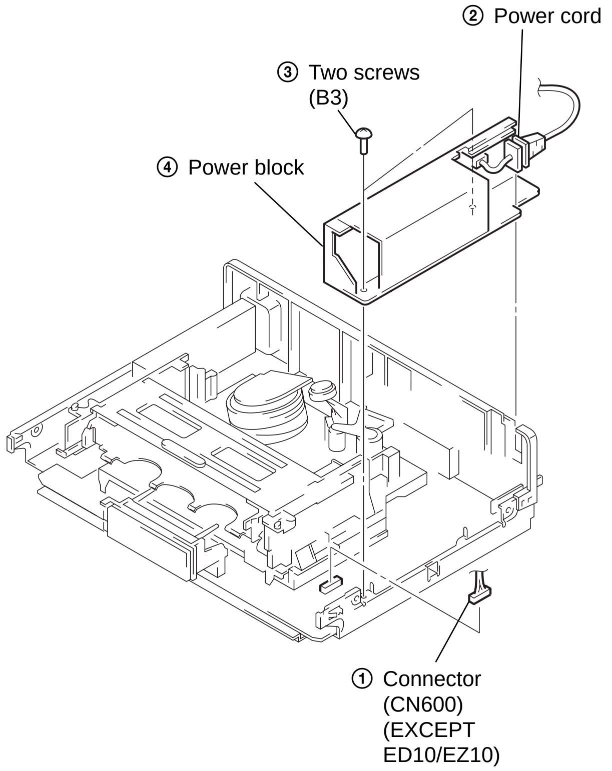
2-4. FRONT PANEL SECTION REMOVAL



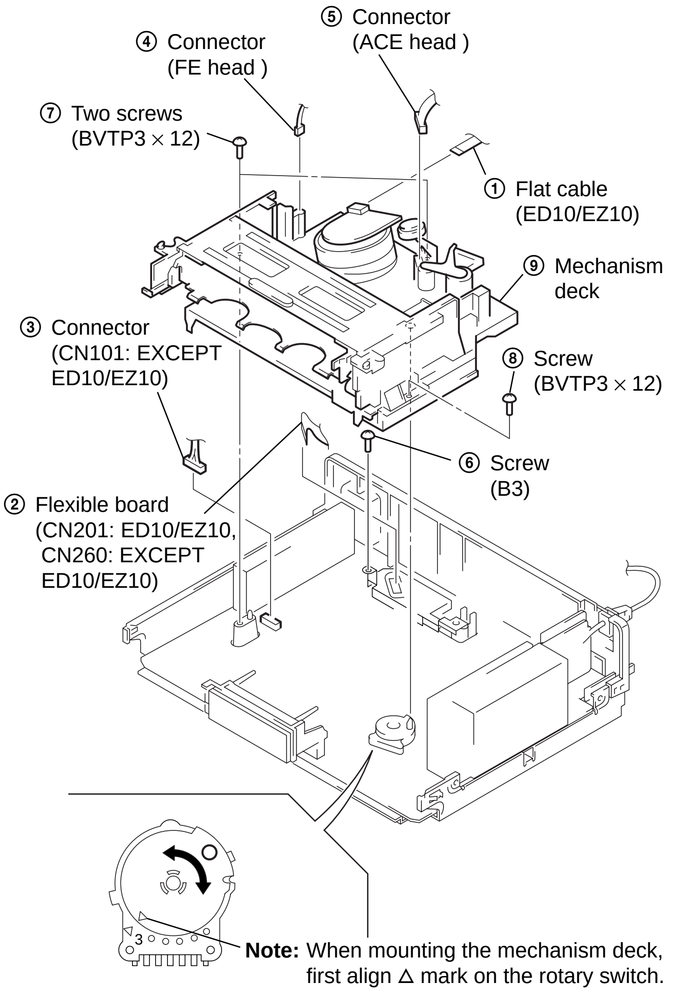
2-5. POWER BLOCK REMOVAL



2-7. MA-350 BOARD REMOVAL

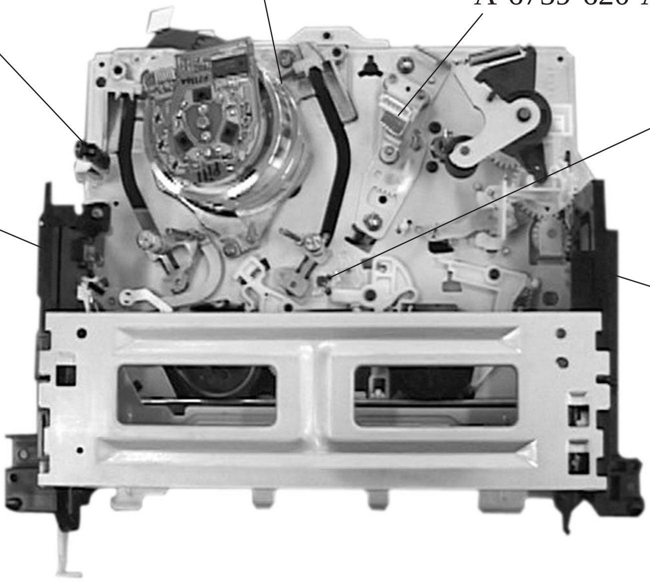


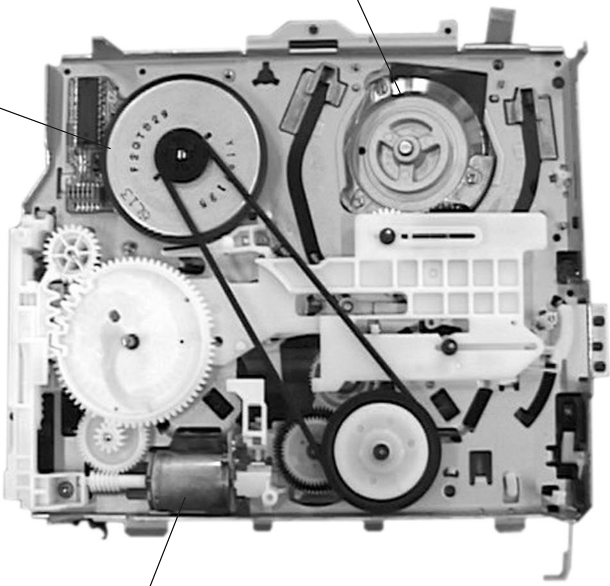
2-6. MECHASISM DECK REMOVAL



Note: When mounting the mechanism deck, first align △ mark on the rotary switch.

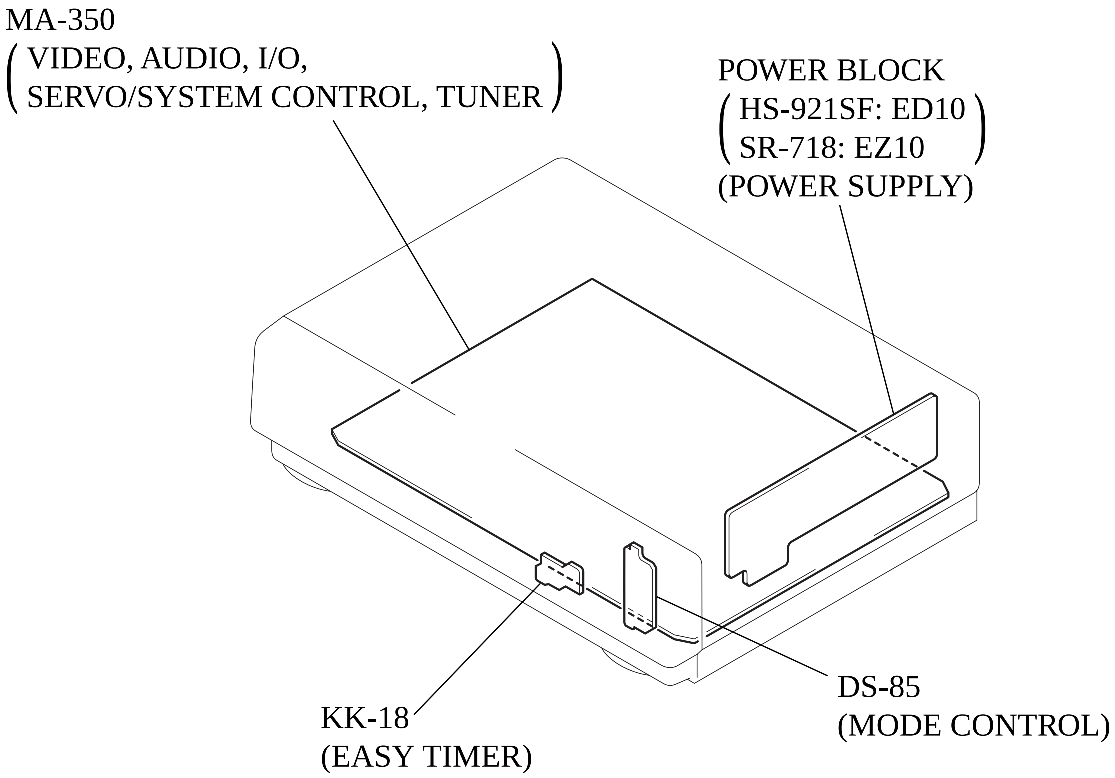
2-8. INTERNAL VIEWS



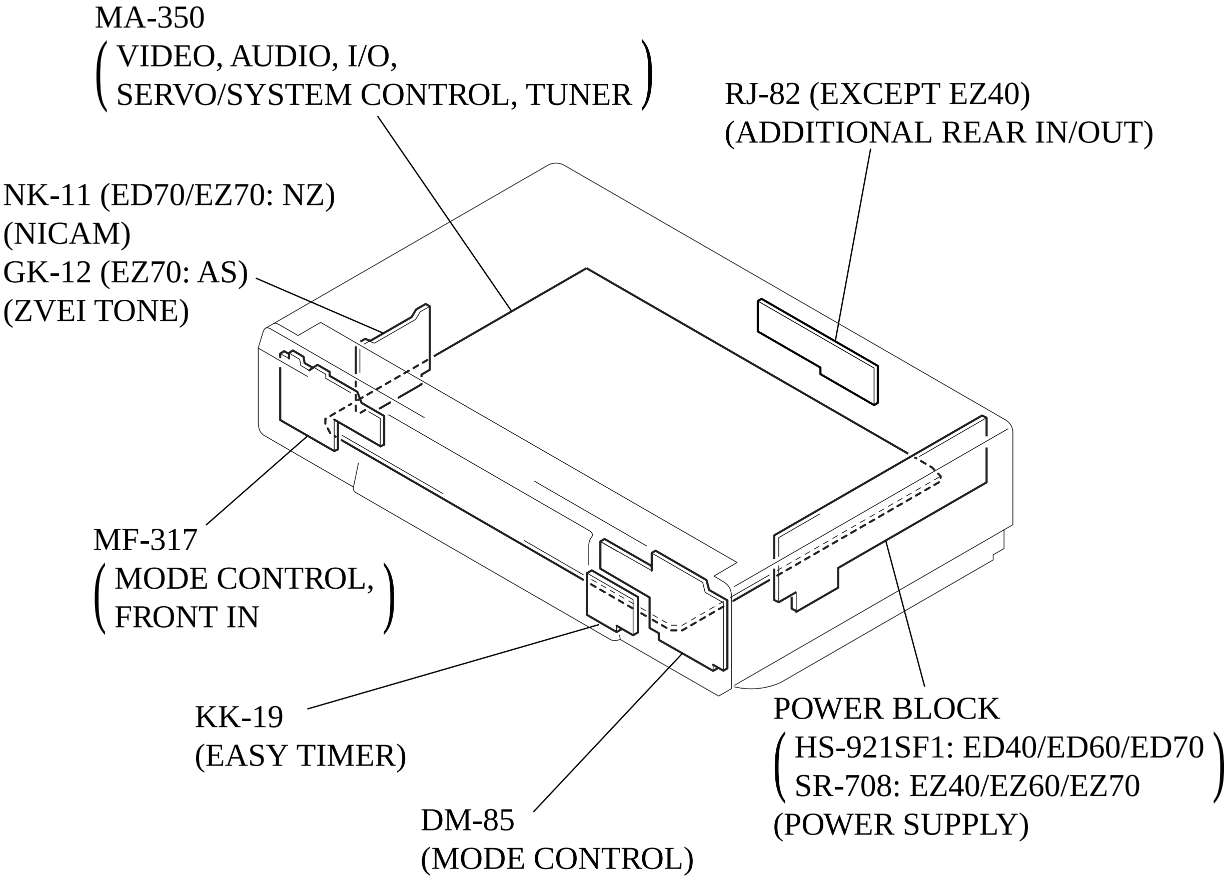


2-9. CIRCUIT BOARDS LOCATION

ED10/EZ10

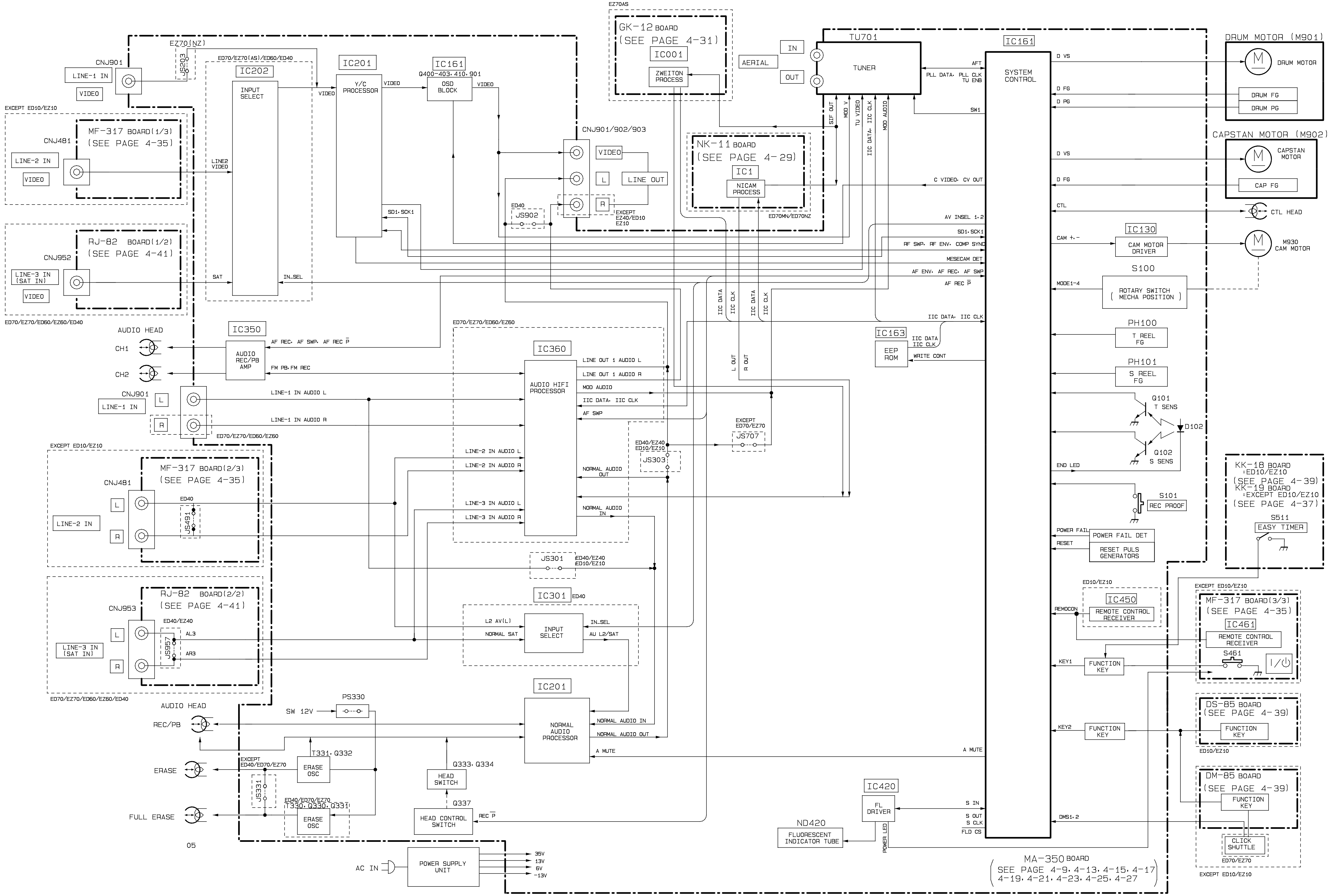


EXCEPT ED10/EZ10

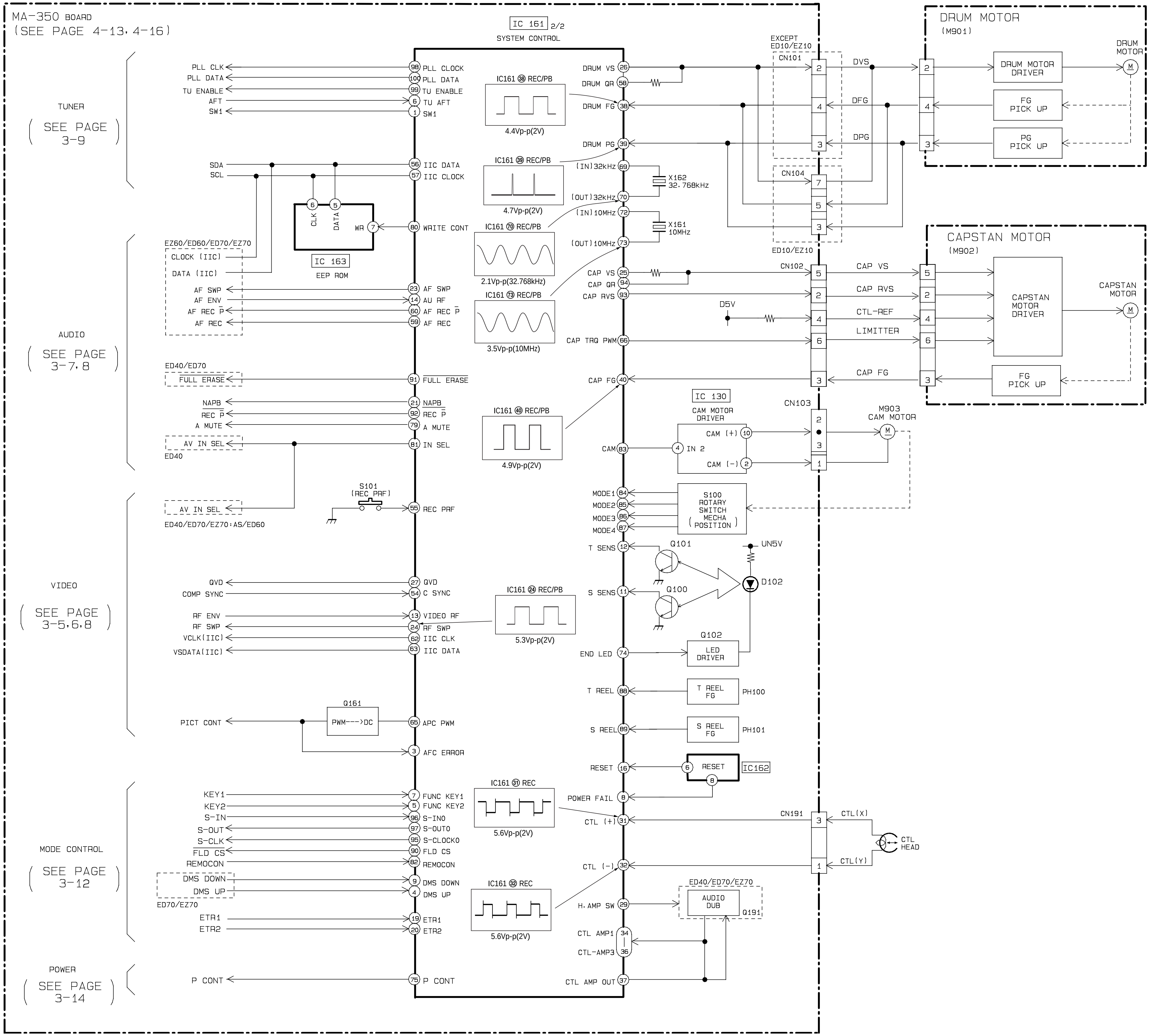


SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

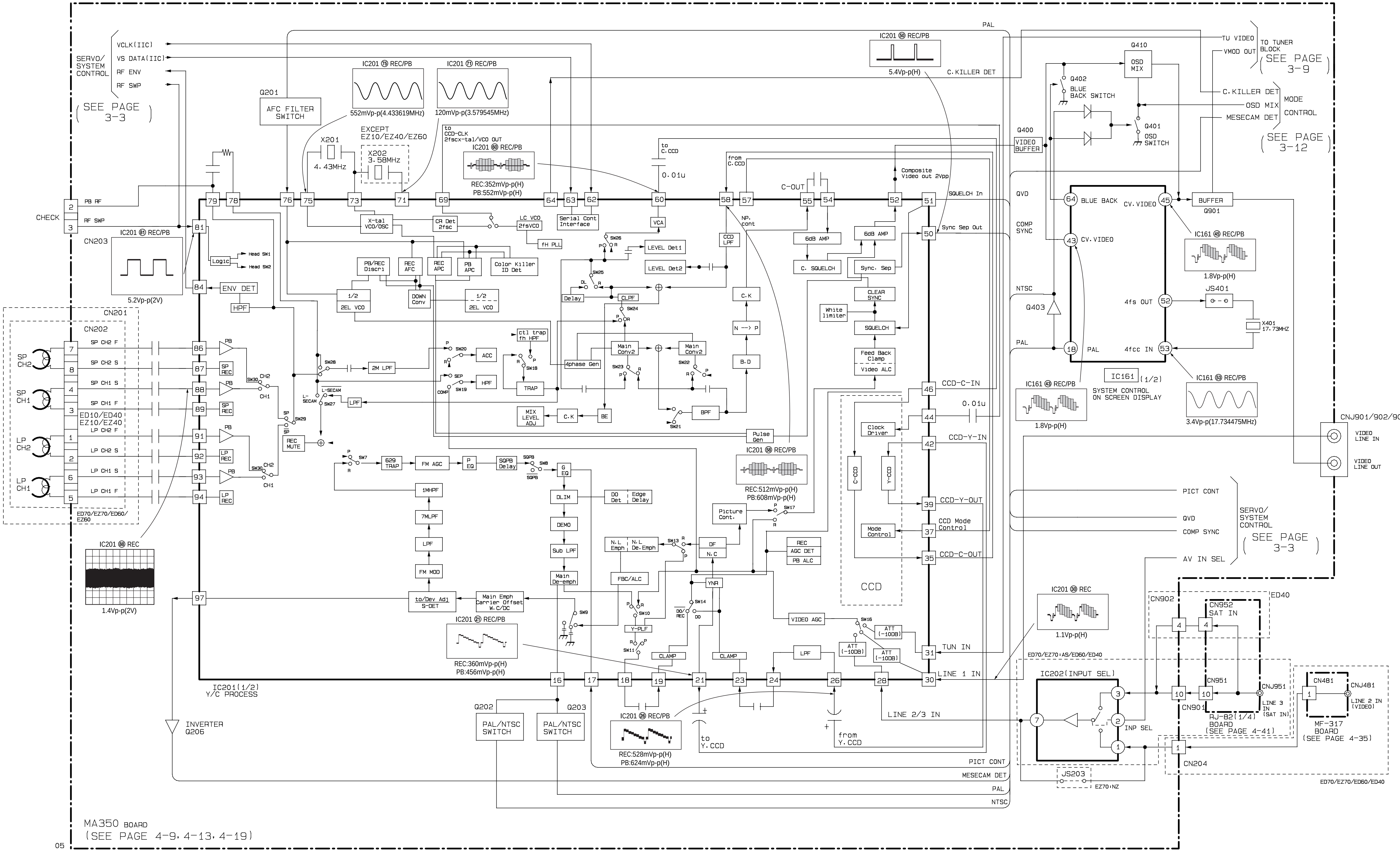


3-2. SERVO/SYSTEM CONTROL BLOCK DIAGRAM

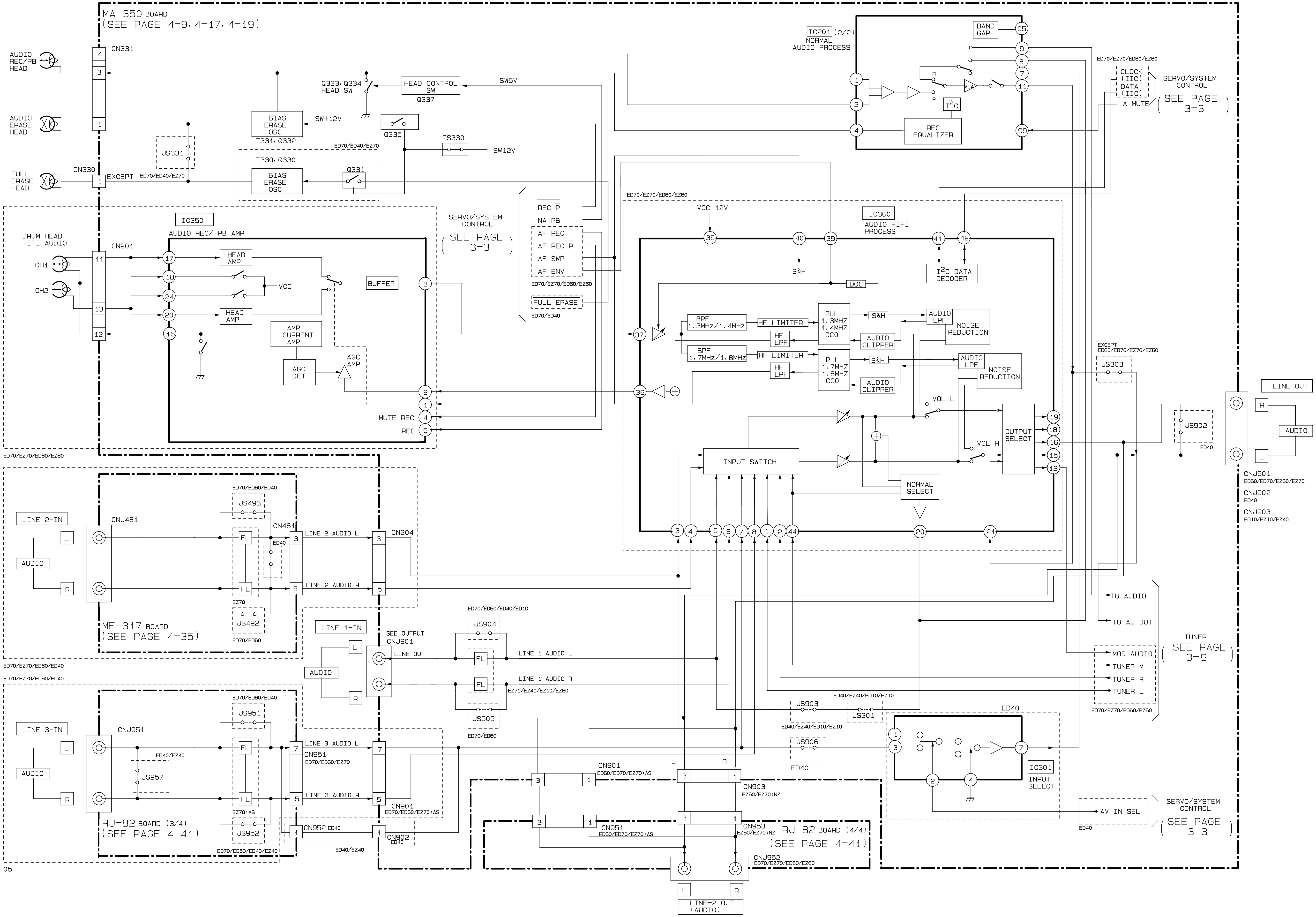


05

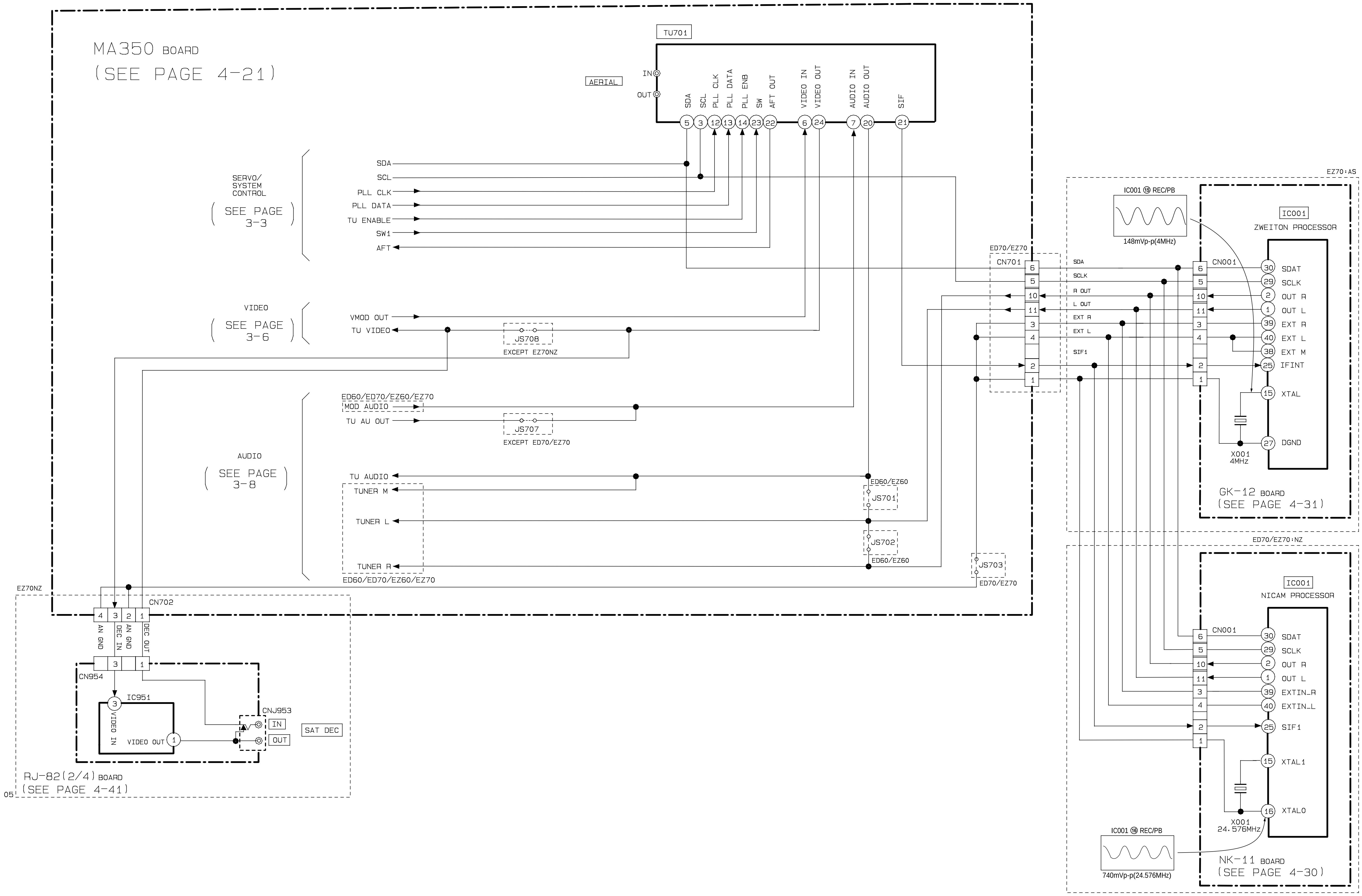
3-3. VIDEO BLOCK DIAGRAM



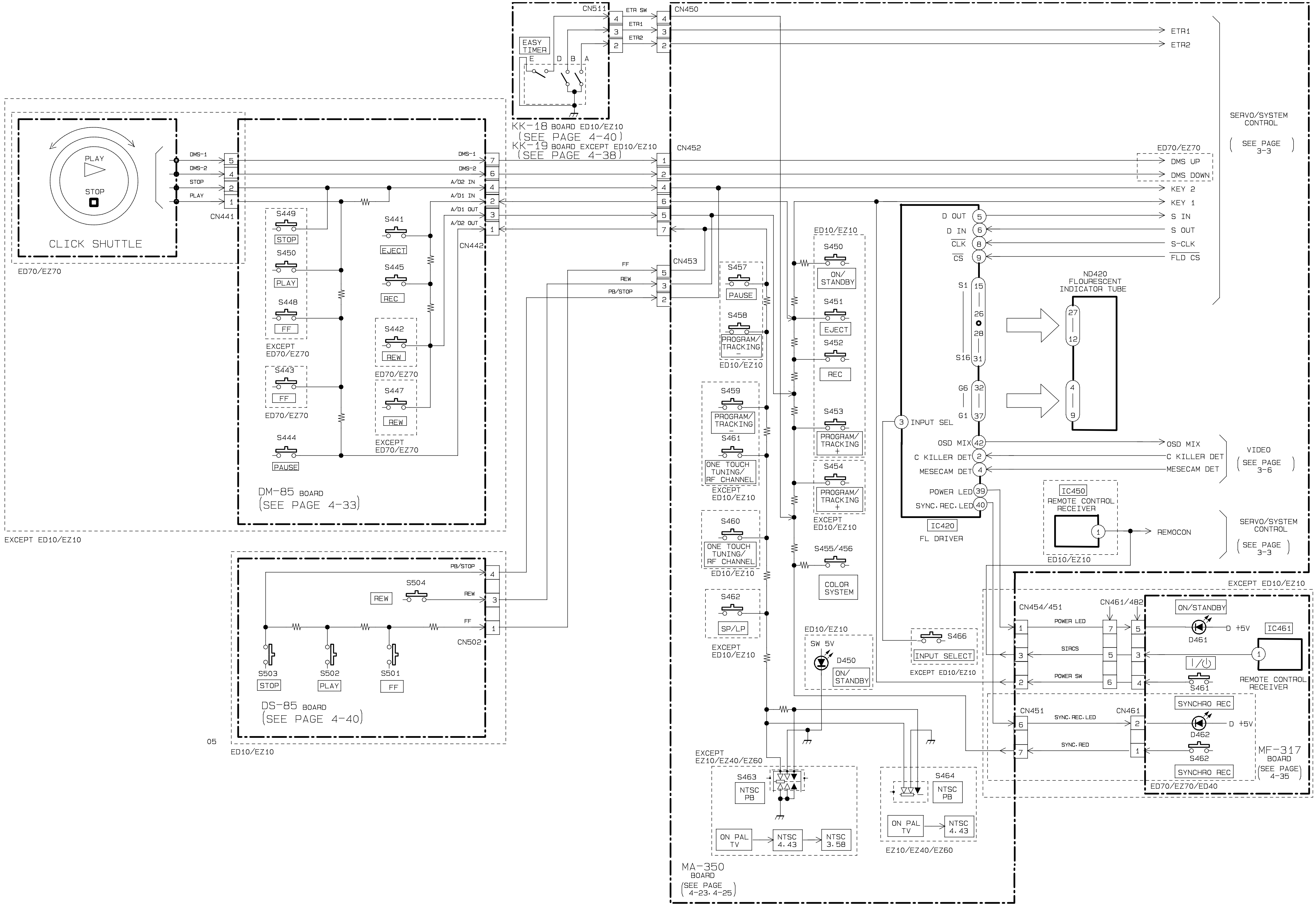
3-4. AUDIO BLOCK DIAGRAM



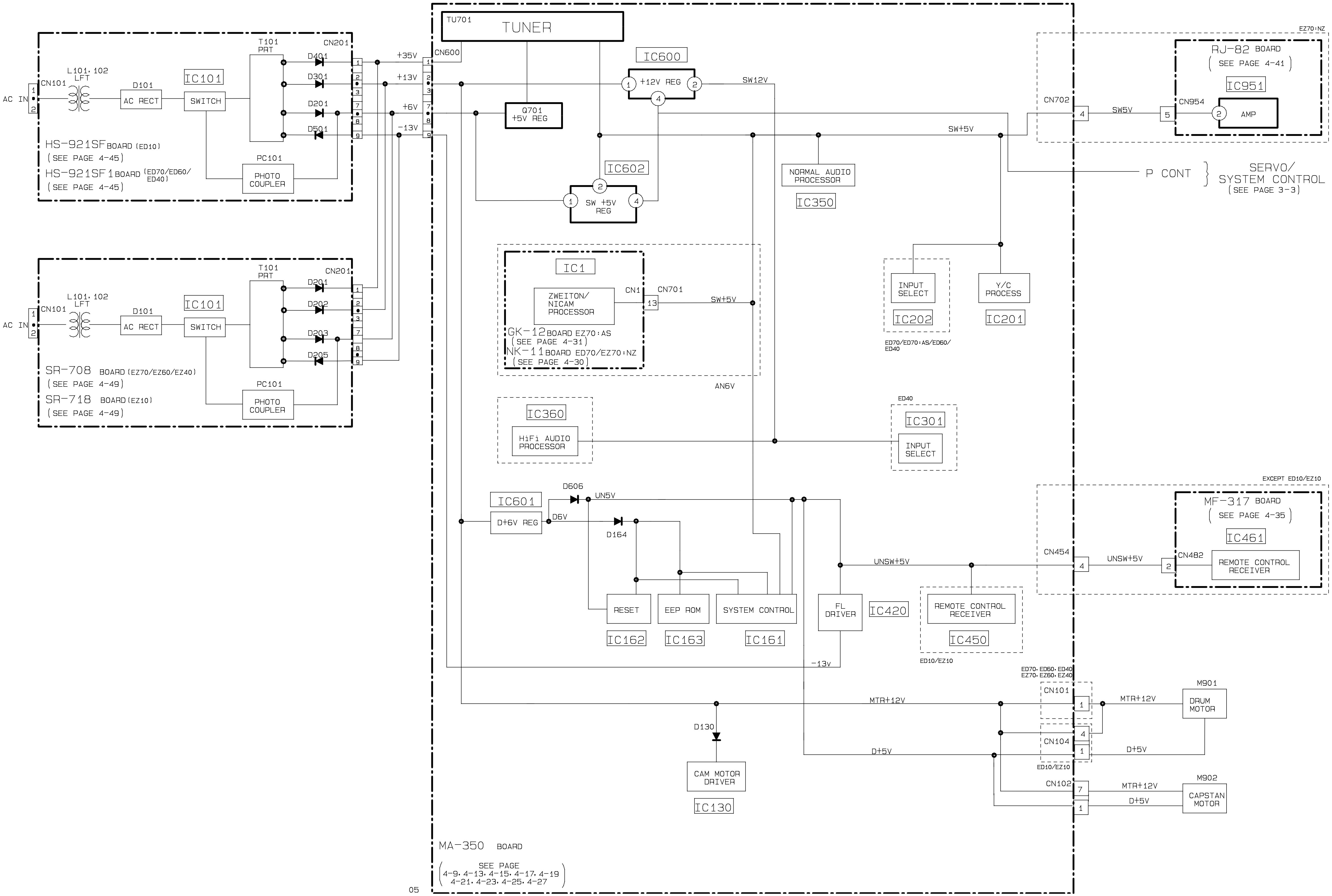
3-5. TUNER BLOCK DIAGRAM



3-6. MODE CONTROL BLOCK DIAGRAM



3-7. POWER BLOCK DIAGRAM



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary mote is printed in each block.)

For printed wiring board:

- ○——— : indicates a lead wire mounted on the component side.
- ●——— : indicates a lead wire mounted on the printed side.
- ○ : Through hole.
- ■ : Parts mounted on the conductor side.
- ░░░ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.

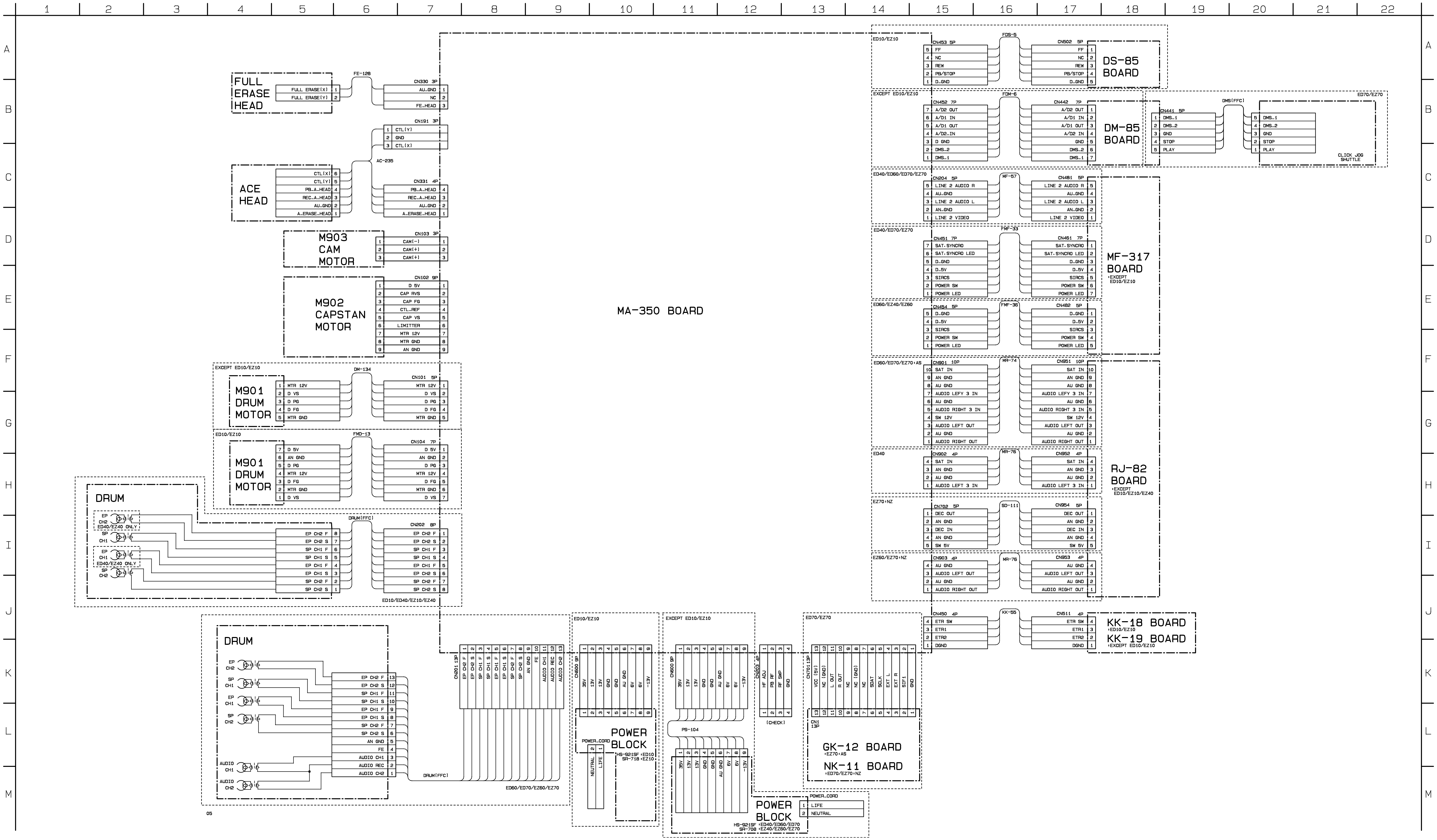
For schematic Diagram:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, $^{1}/_{4}$ W (Chip resistors : $^{1}/_{10}$ W) unless otherwise specified.
  kΩ : 1000Ω, MW : 1000kΩ.
- All capacitors are in µF unless otherwise noted. pF : µµF 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- △ : internal component.
- : adjustment for repair.
- B + : B+ Line.
- B – : B– Line.
- Circled numbers refer to waveforms.
- Voltages are dc between measurement point.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC 10MW).
- Voltage variations may be noted due to normal production tolerances.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

4-1. FRAME SCHEMATIC DIAGRAM

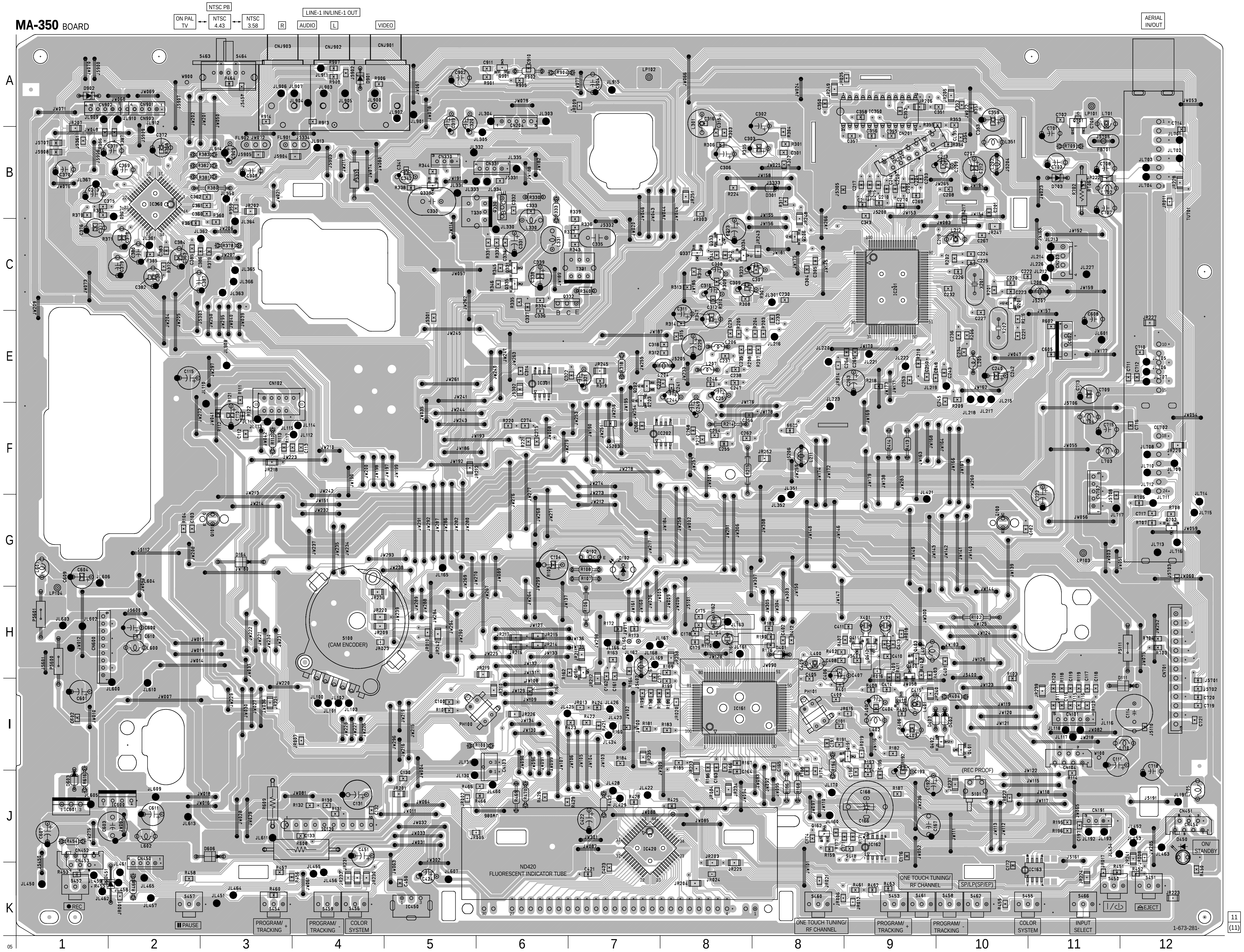


4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

MA-350 (VIDEO, AUDIO, I/O, SERVO/SYSTEM CONTROL, TUNER) PRINTED WIRING BOARD

– Ref. No.: MA-350 board; 1,000 series –

There are few cases that the part isn't mounted in this model is printed on this diagram.

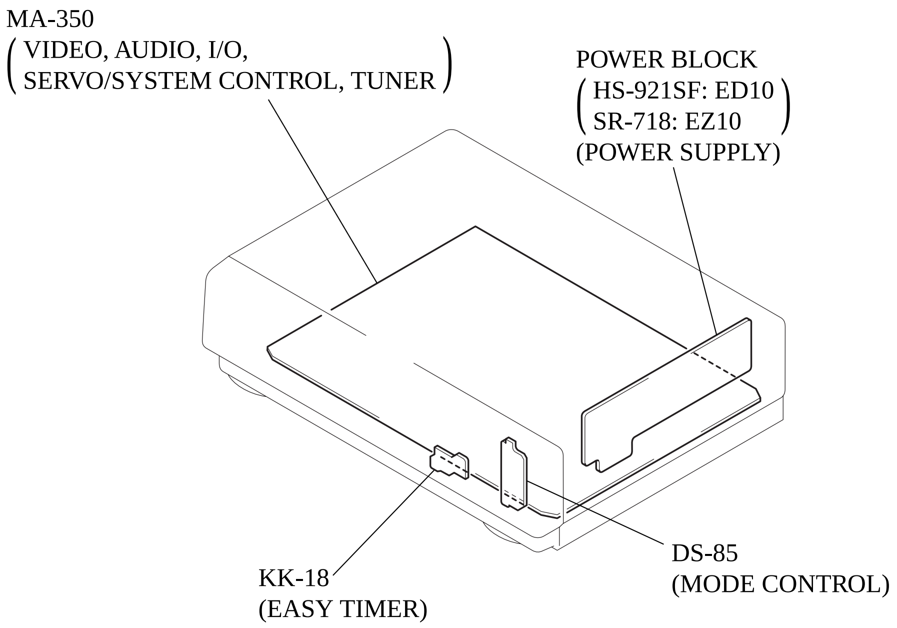


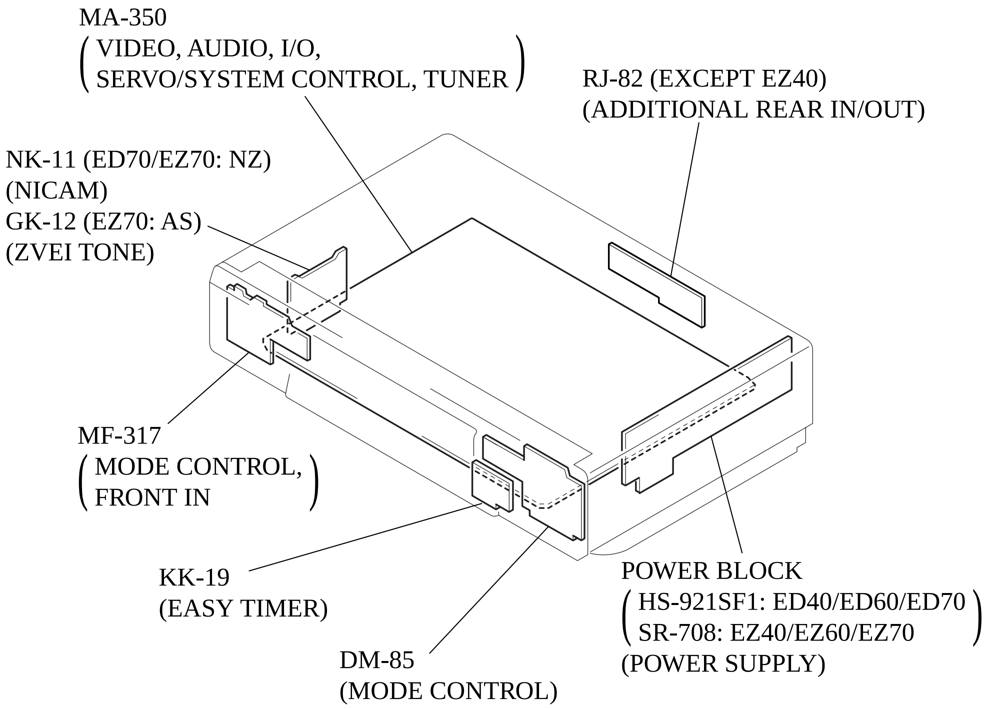
VIDEO, AUDIO, I/O, SERVO/SYSTEM CONTROL, TUNER

MA-350

MA-350 BOARD

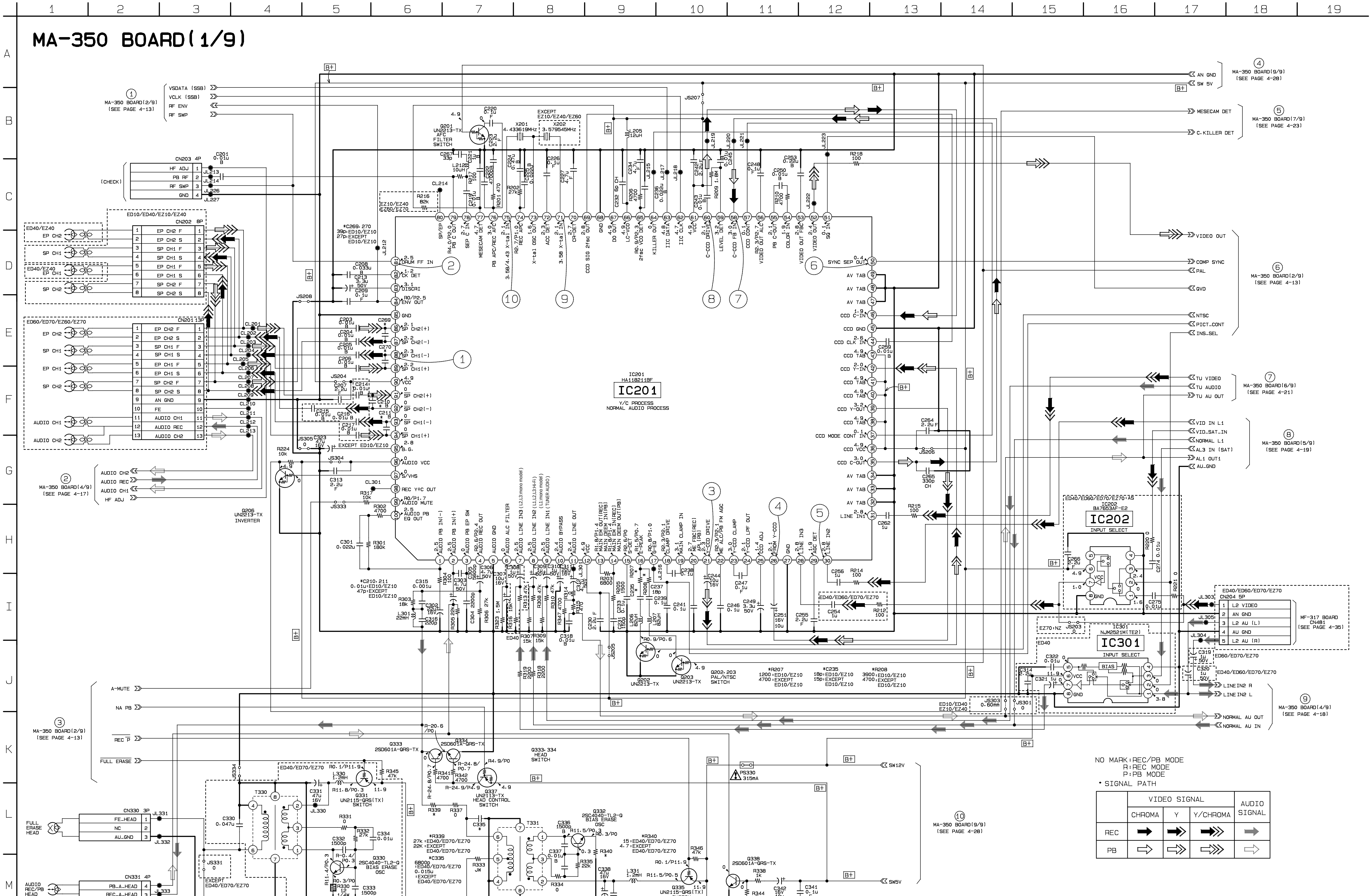
CN101	H-12
CN102	D-3
CN103	H-6
CN104	H-12
CN191	I-12
CN201	B-10
CN202	B-10
CN203	C-12
CN204	A-6
CN330	B-5
CN331	B-6
CN450	I-2
CN451	I-13
CN452	I-1
CN453	I-1
CN454	I-13
CN600	G-1
CN701	G-13
CN702	E-12
CN901	A-2
CN902	A-1
CN903	A-2
D102	F-7
D111	H-13
D164	F-3
D401	G-9
D402	H-11
D403	H-10
D450	I-13
D603	I-1
D606	I-3
D703	B-12
IC130	I-4
IC161	H-8
IC162	I-10
IC163	J-12
IC201	C-10
IC202	E-8
IC301	D-6
IC350	A-10
IC360	B-2
IC420	I-7
IC450	I-2
IC600	I-2
IC601	I-1
IC602	D-12
Q100	F-11
Q101	F-3
Q102	F-7
Q161	G-7
Q191	H-10
Q201	C-11
Q202	D-7
Q203	D-7
Q206	C-9
Q330	B-6
Q331	C-6
Q332	C-6
Q333	C-8
Q334	C-8
Q335	C-6
Q337	C-8
Q338	B-5
Q400	G-10
Q401	H-11
Q402	H-11
Q403	G-10
Q410	H-10
Q701	H-12
Q702	F-13
Q901	A-6





MA-350 (VIDEO, AUDIO) SCHEMATIC DIAGRAM • **See page 4-5 for printed wiring board.**

– Ref. No.: MA-350 board; 1,000 series –

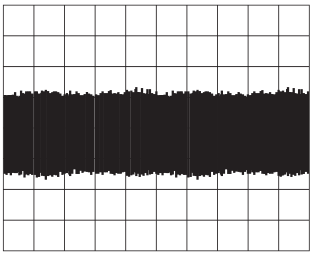


Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

VIDEO, AUDIO
MA-350 (1/9)

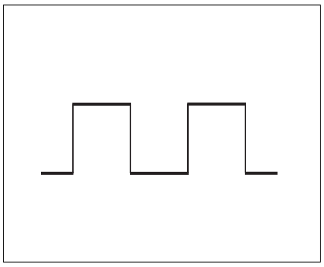
- **Waveforms**

❶ IC201 (88) REC



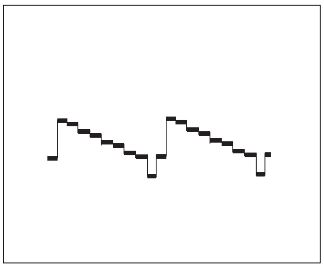
1.4 Vp-p (2V)

❷ IC201 (81) REC/PB



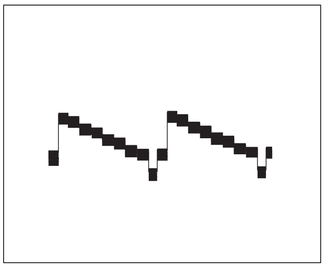
5.2 Vp-p (2 V)

❸ IC201 (21) REC/PB



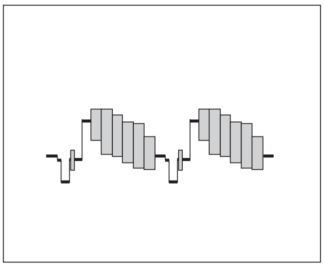
REC : 360 mVp-p (H)
PB : 456 mVp-p (H)

❹ IC201 (26) REC/PB



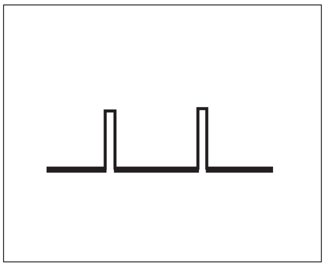
REC : 528 mVp-p (H)
PB : 624 mVp-p (H)

❺ IC201 (30) REC



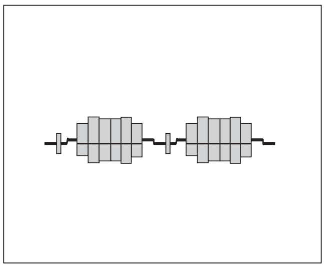
1.1 Vp-p (H)

❻ IC201 (50) REC/PB



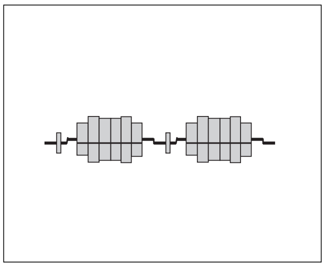
5.4 Vp-p (H)

❼ IC201 (58) REC/PB



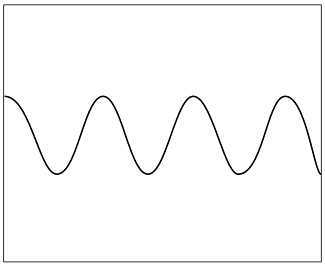
REC : 512 mVp-p (H)
PB : 608 mVp-p (H)

❽ IC201 (60) REC/PB



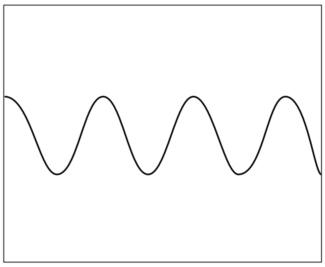
REC : 352 mVp-p (H)
PB : 552 mVp-p (H)

❾ IC201 (71) REC/PB



120 mVp-p (3.579545 MHz)

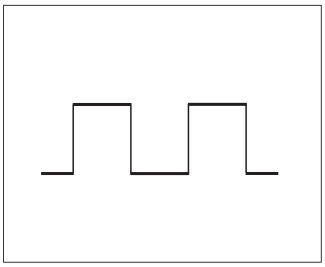
❿ IC201 (75) REC/PB



552 mVp-p (4.433619 MHz)

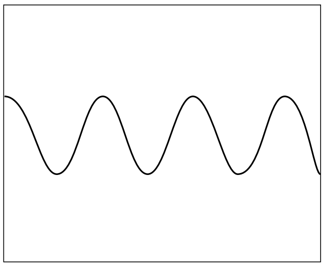
- **Waveforms**

❶ IC161 ㉔ REC/PB



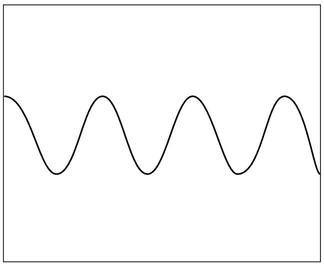
5.3 Vp-p (2V)

❷ IC161 ⑦⓪ REC/PB



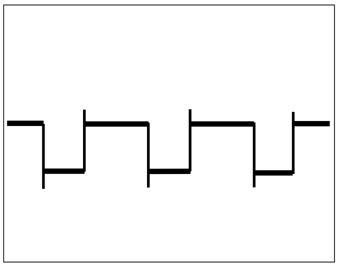
2.1 Vp-p (32.768 kHz)

❸ IC161 ⑦③ REC/PB



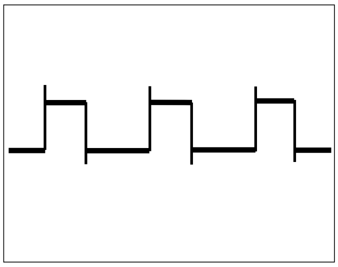
3.5 Vp-p (10 MHz)

❹ IC161 ㉛ REC



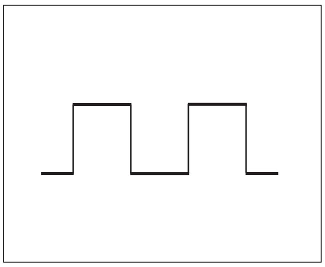
5.6 Vp-p (2 V)

❺ IC161 ㉜ REC



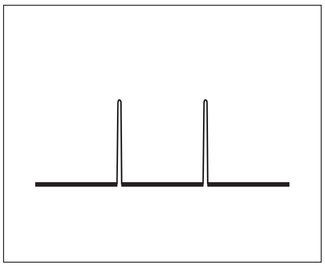
5.6 Vp-p (2 V)

❻ IC161 ㊳ REC/PB



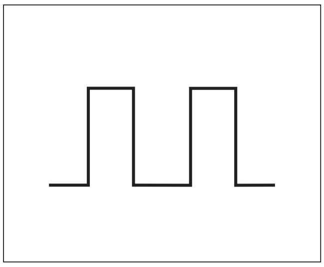
4.4 Vp-p (2 V)

❼ IC161 ㊴ REC/PB



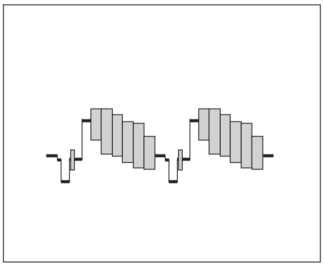
4.7 Vp-p (2 V)

❽ IC161 ㊵ REC/PB



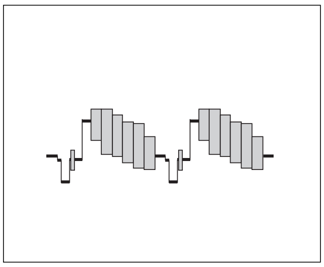
4.9 Vp-p (2 V)

❾ IC161 ㊸ REC/PB



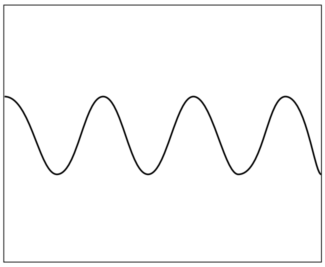
1.8 Vp-p (H)

❿ IC161 ㊺ REC/PB



1.8 Vp-p (H)

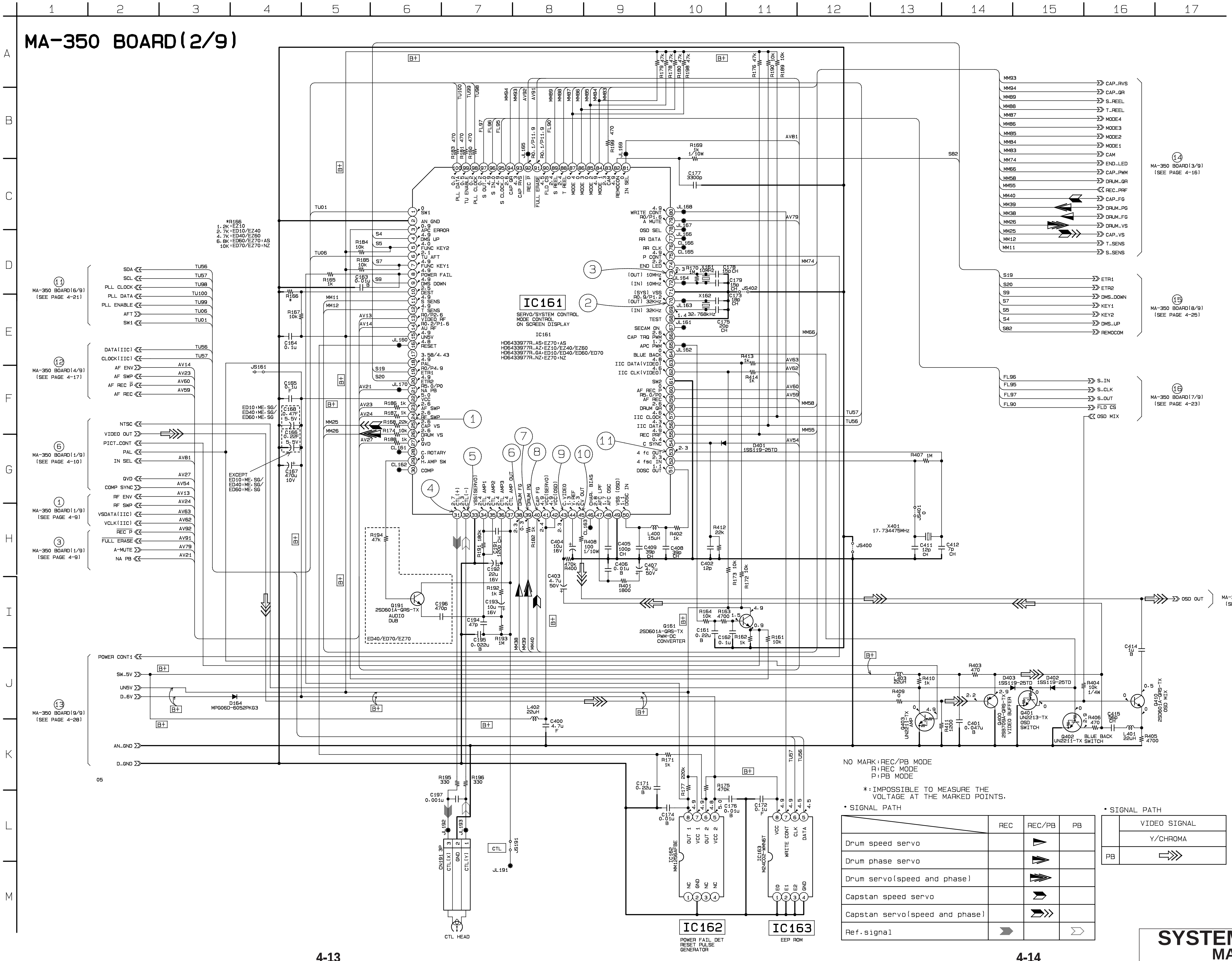
⓫ IC161 53 REC/PB



3.4 Vp-p (17.734475 MHz)

MA-350 (SYSTEM CONTROL) SCHEMATIC DIAGRAM • **See page 4-5 for printed wiring board.**

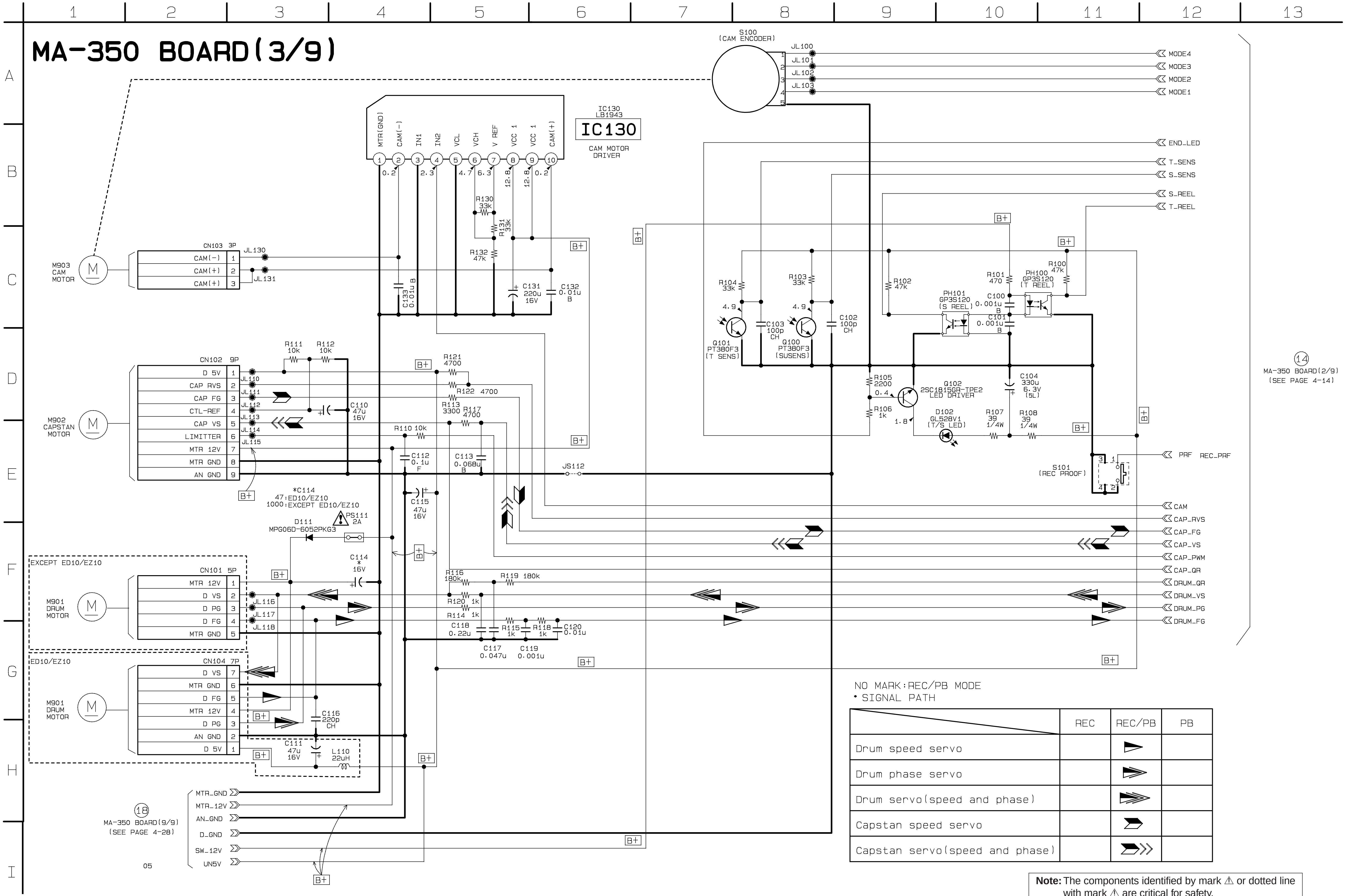
– Ref. No.: MA-350 board; 1,000 series –



SYSTEM CONTROL
MA-350 (2/9)

MA-350 (SERVO CONTROL) SCHEMATIC DIAGRAM **• See page 4-5 for printed wiring board.**

– Ref. No.: MA-350 board; 1,000 series –



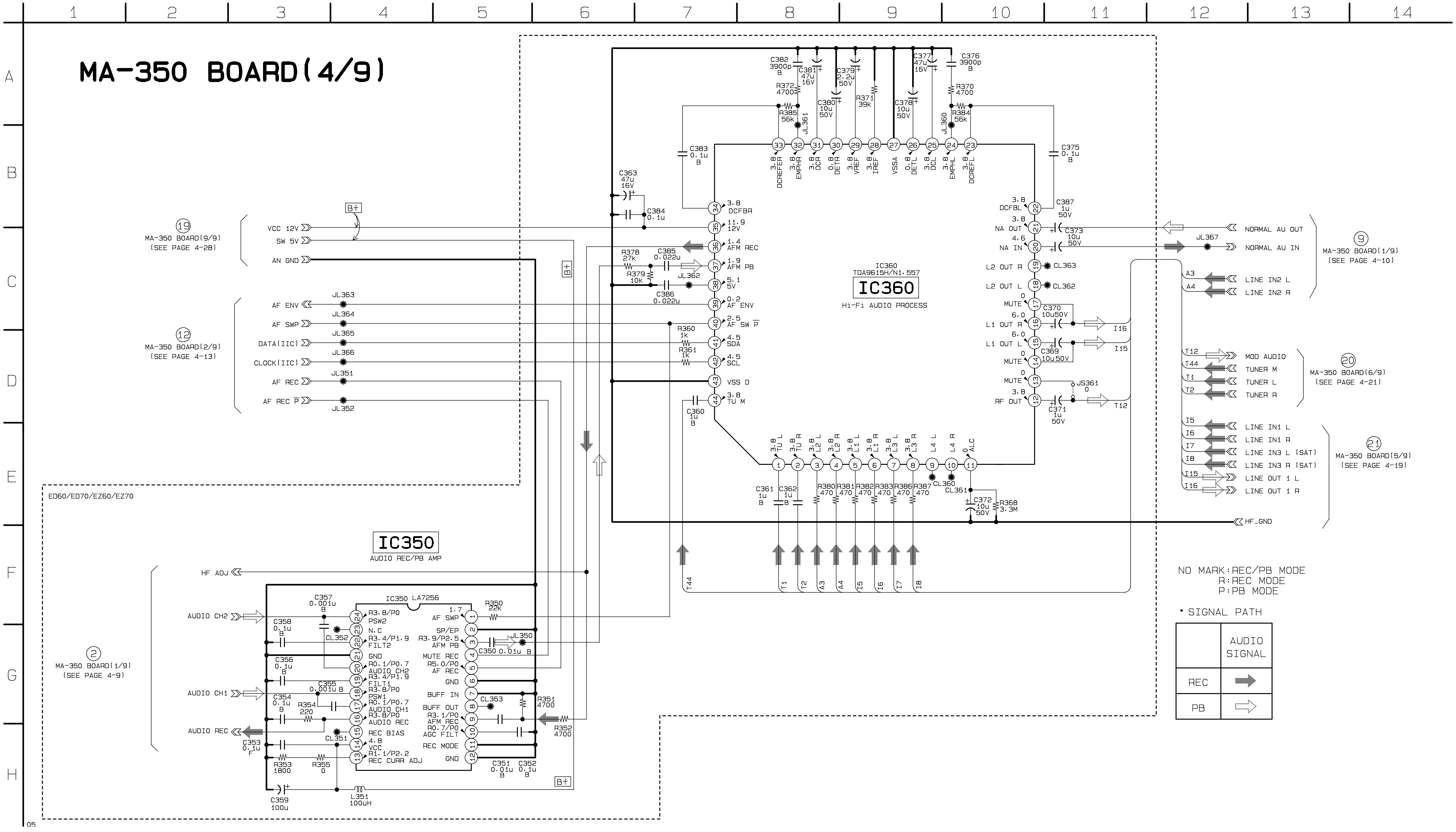
	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶	
Drum servo(speed and phase)		▶	
Capstan speed servo		▶	
Capstan servo(speed and phase)		▶	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SERVO CONTROL
MA-350 (3/9)

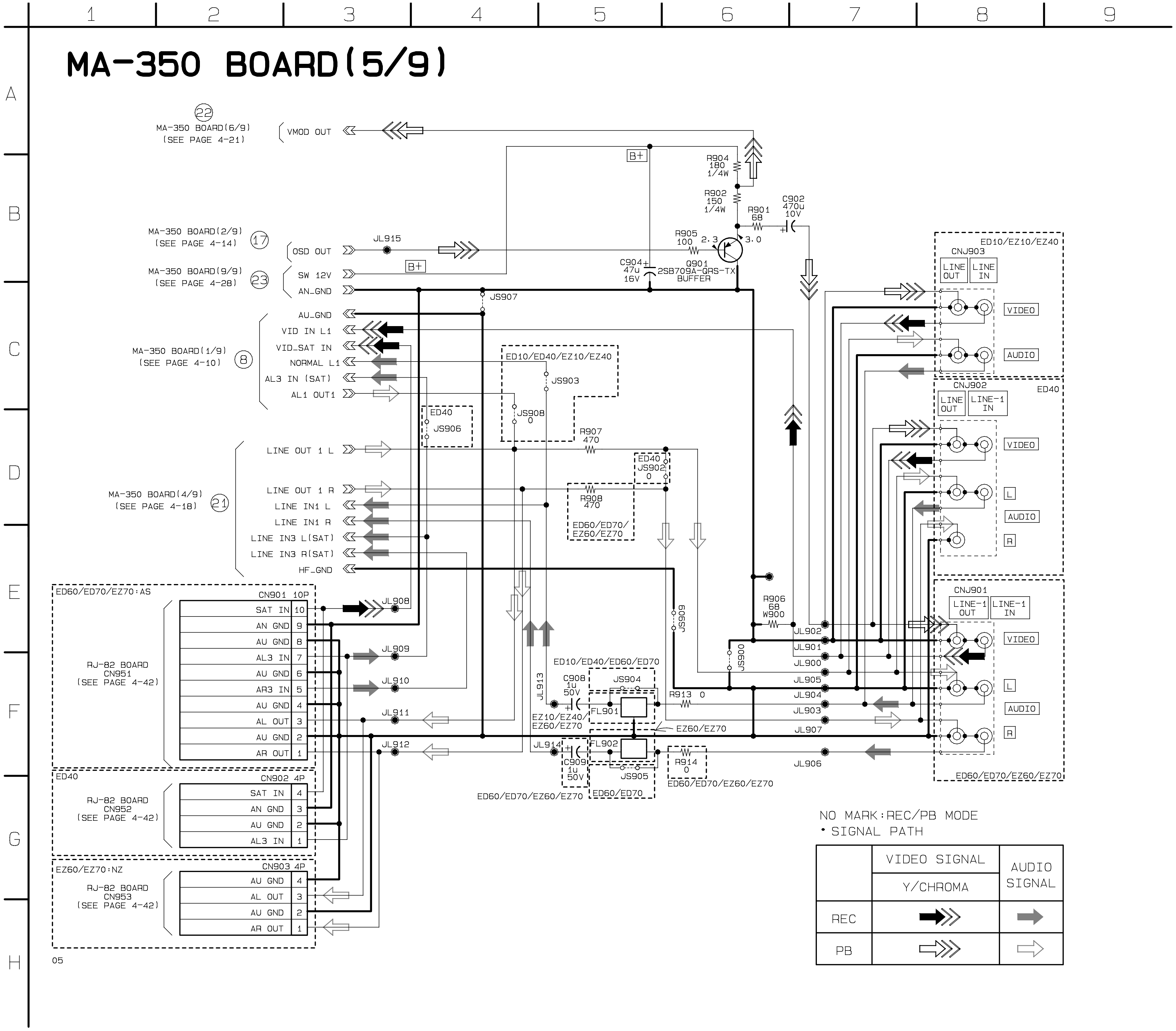
MA-350 (Hi-Fi AUDIO) SCHEMATIC DIAGRAM **• See page 4-5 for printed wiring board.**

– Ref. No.: MA-350 board; 1,000 series –



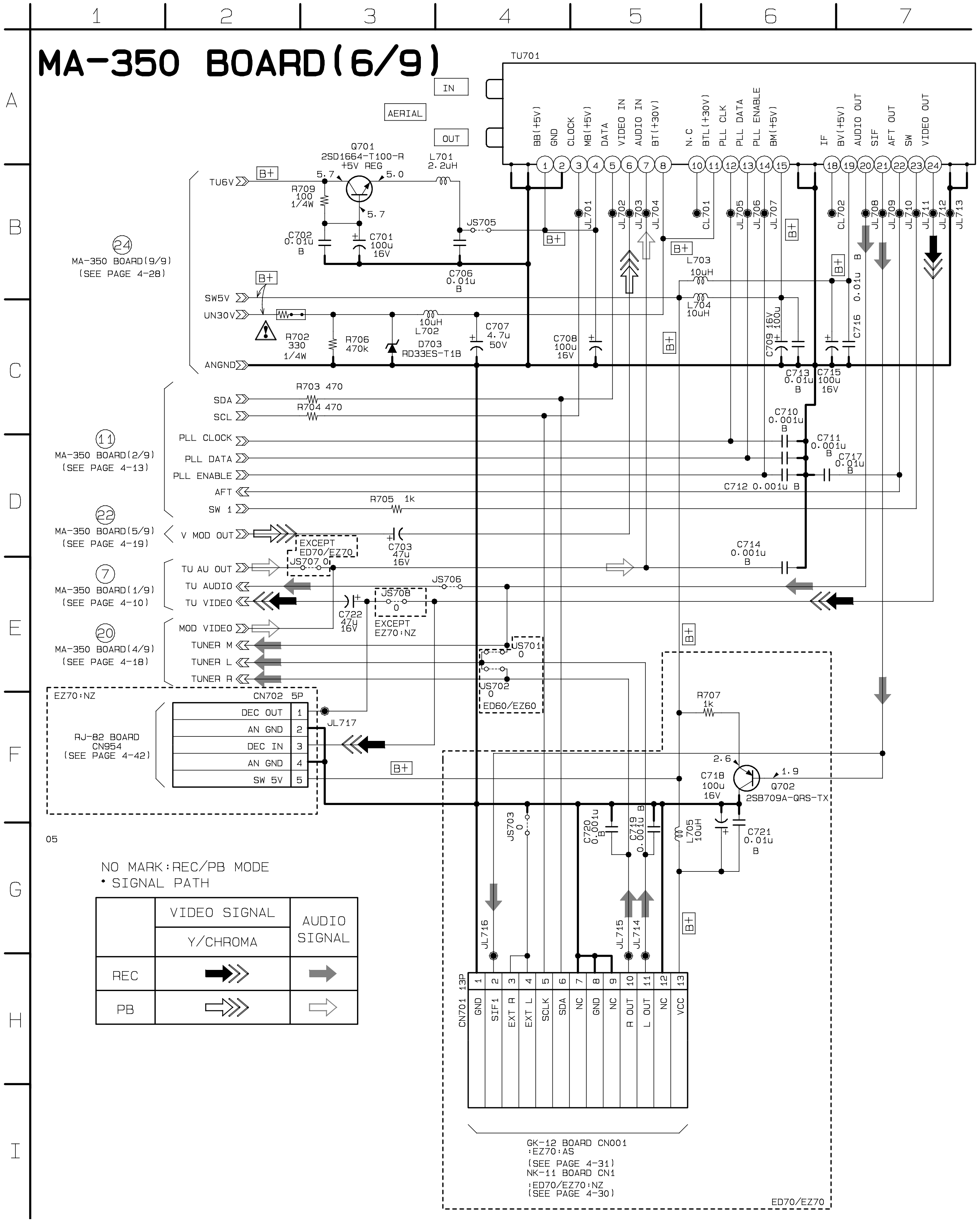
MA-350 (I/O) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.

– Ref. No.: MA-350 board; 1,000 series –



MA-350 (TUNER) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.

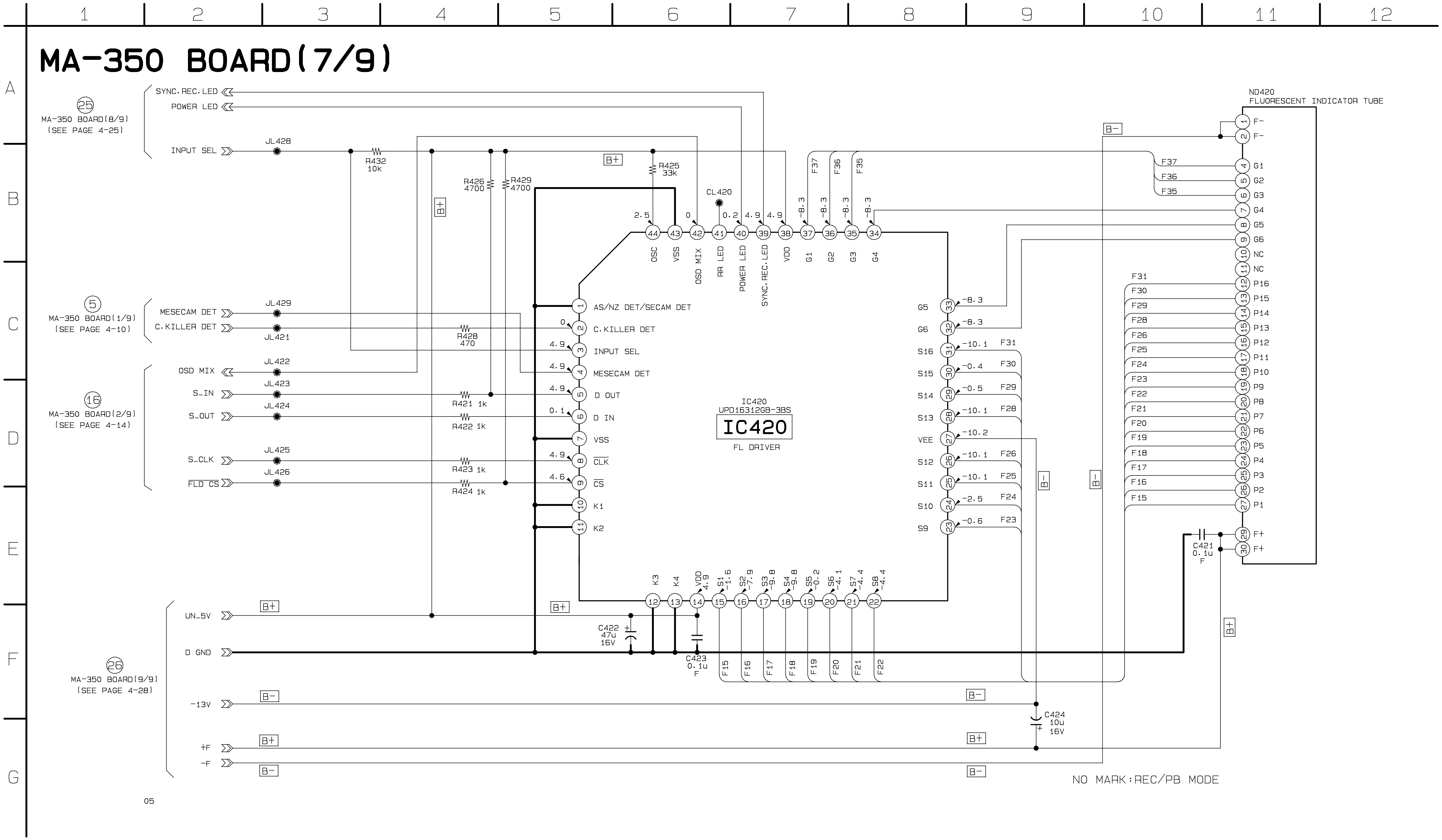
– Ref. No.: MA-350 board; 1,000 series –



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

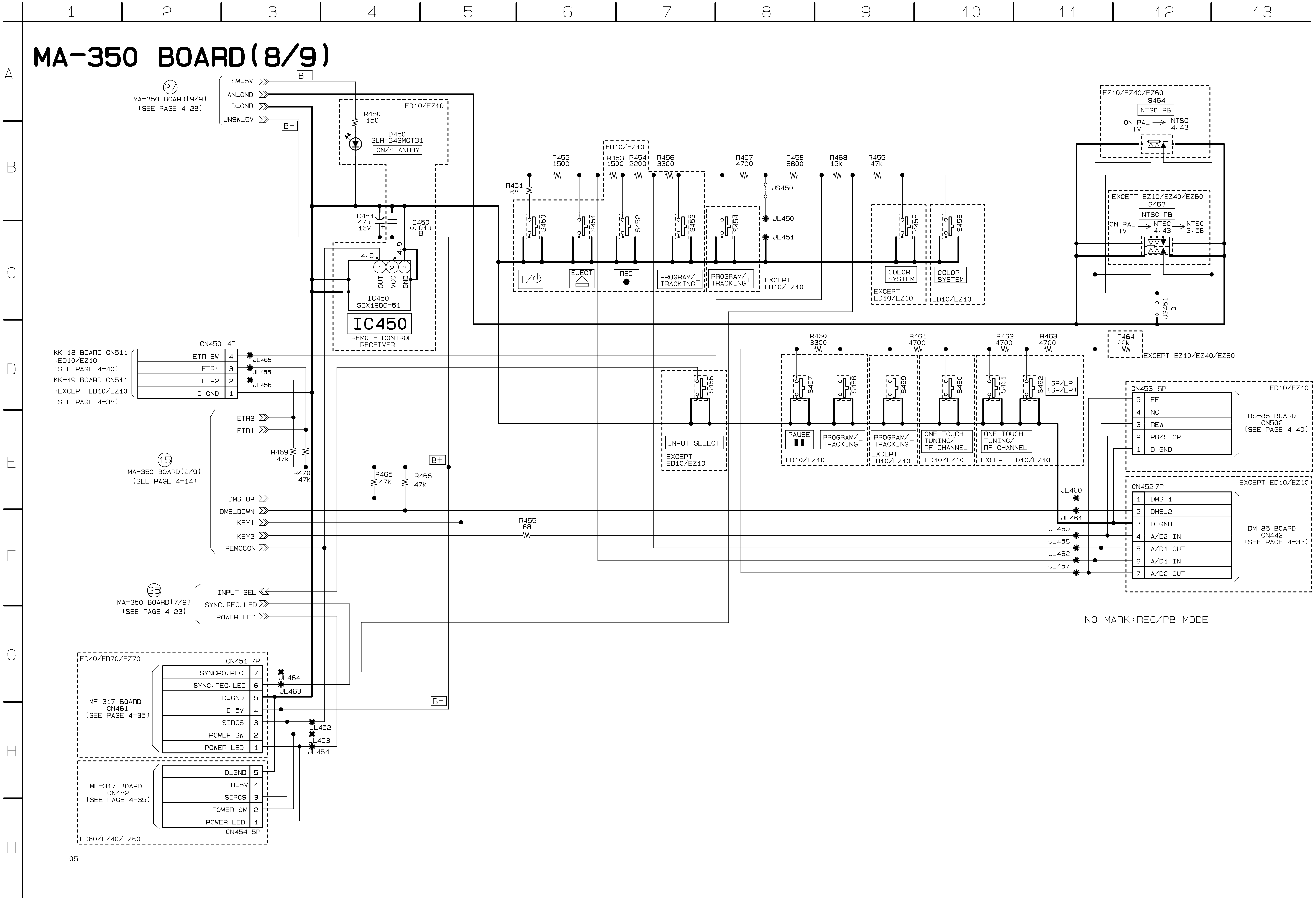
MA-350 (FL DRIVE) SCHEMATIC DIAGRAM • **See page 4-5 for printed wiring board.**

– Ref. No.: MA-350 board; 1,000 series –



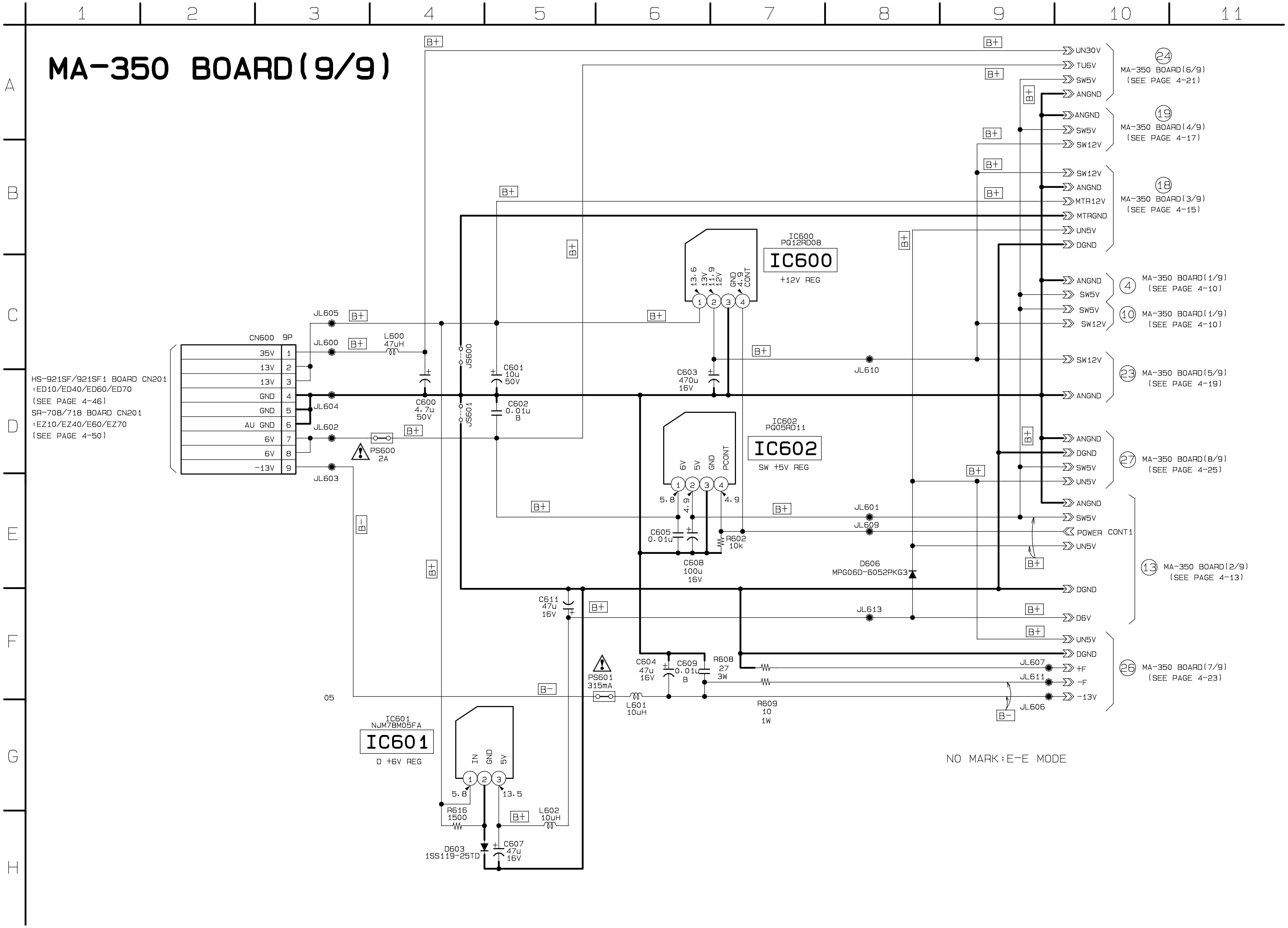
MA-350 (MODE CONTROL) SCHEMATIC DIAGRAM **• See page 4-5 for printed wiring board.**

– Ref. No.: MA-350 board; 1,000 series –



MODE CONTROL
MA-350 (8/9)

MA-350 (POWER SUPPLY) SCHEMATIC DIAGRAM • **See page 4-5 for printed wiring board.**
– Ref. No.: MA-350 board; 1,000 series –



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

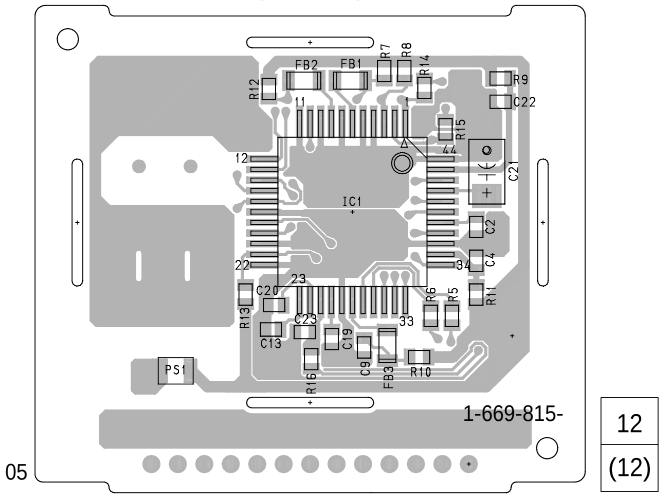
POWER SUPPLY
MA-350 (9/9)

NK-11 (NICAM) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM
– Ref. No.: NK-11 board; 2,000 series –

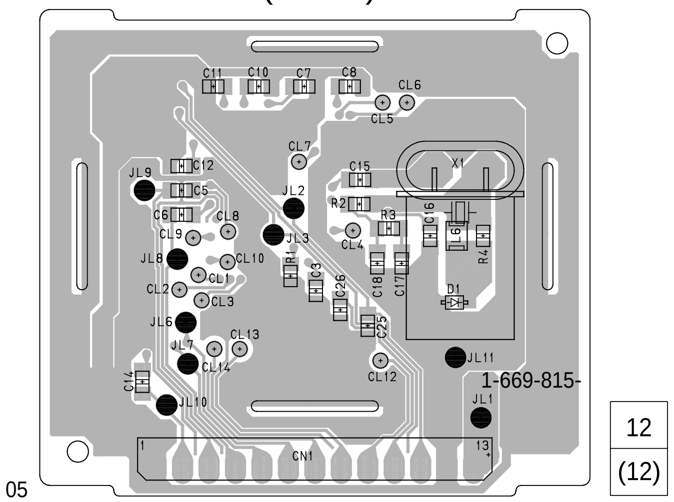
– SLV-ED70/EZ70: NZ –

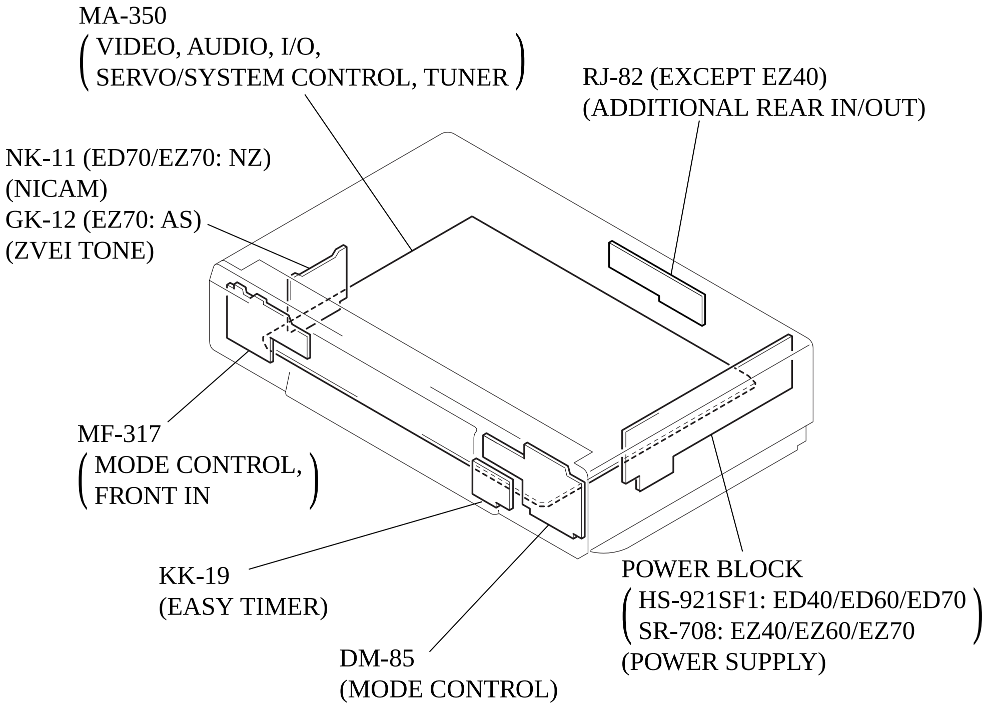
There are few cases that the part isn't mounted in this model is printed on this diagram.

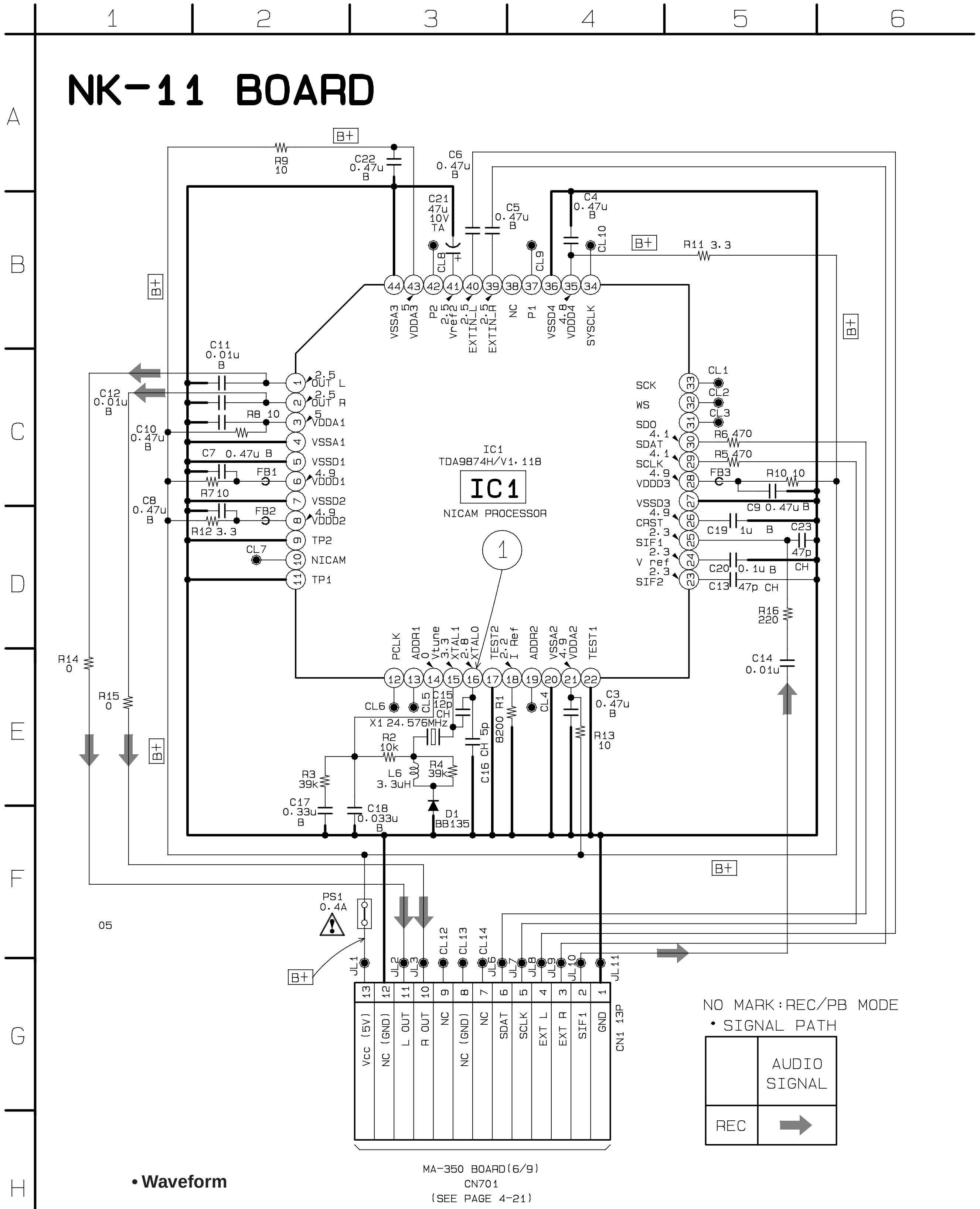
NK-11 BOARD(SIDE A)



NK-11 BOARD(SIDE B)

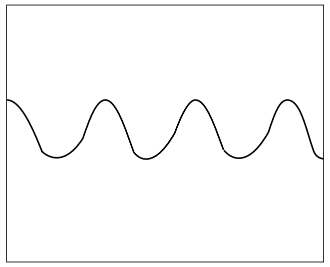






• Waveform

❶ IC1 ⑯ REC/PB



740 mVp-p (24.576 MHz)

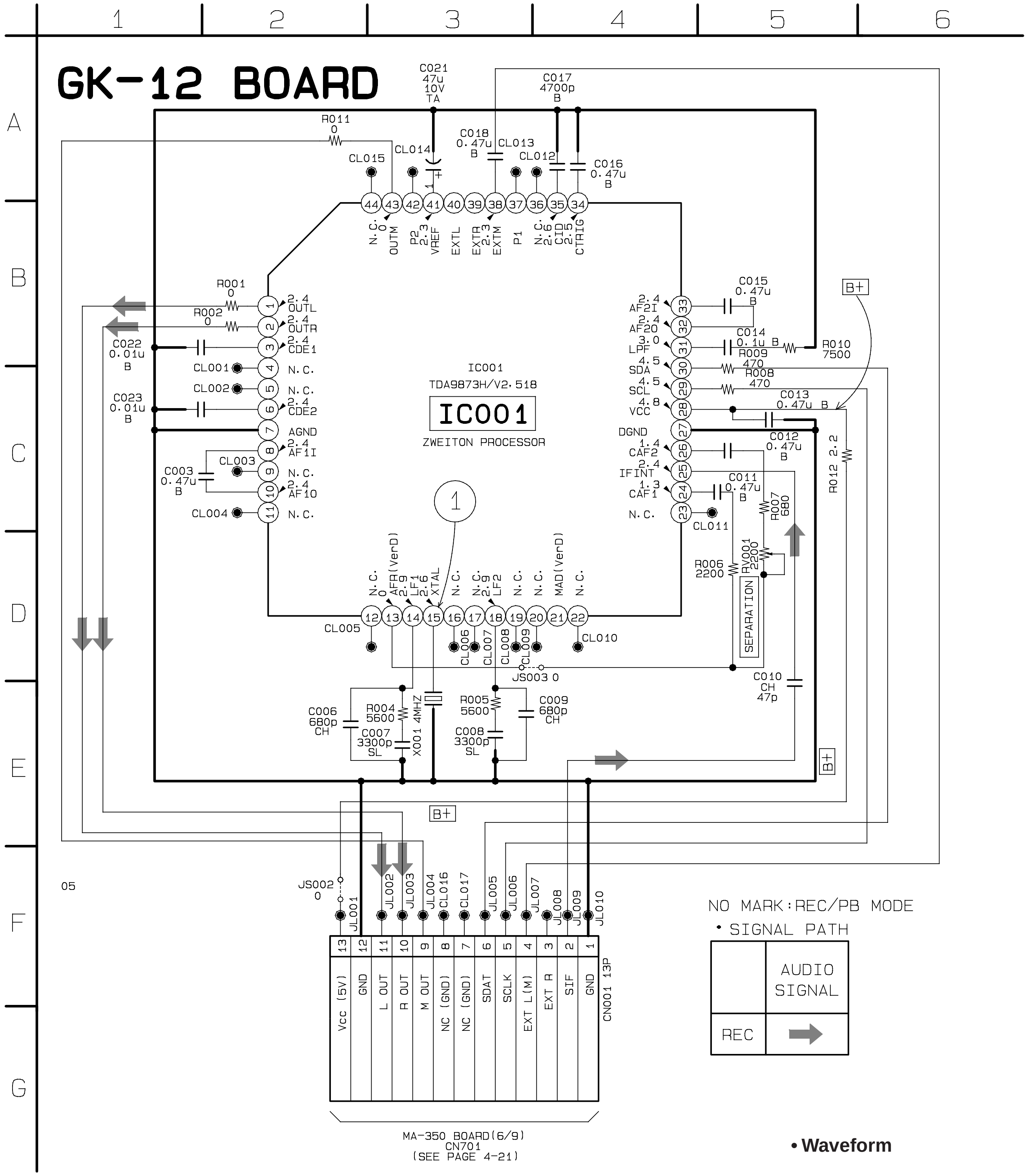
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

GK-12 (ZVEI TONE) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

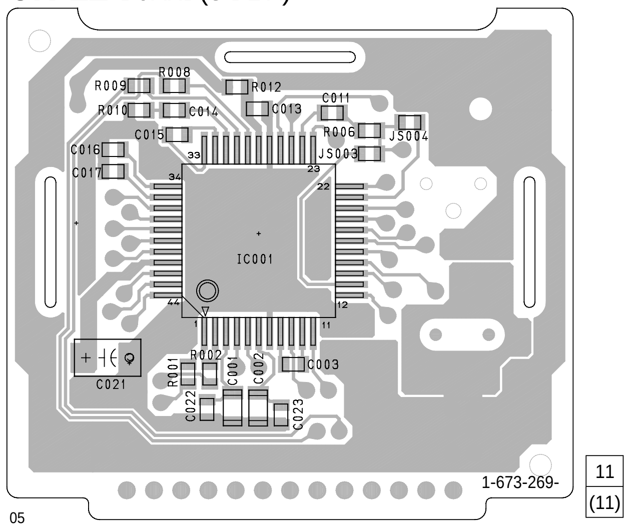
– Ref. No.: GK-12 board; 1,000 series –

– SLV-EZ70: AS –

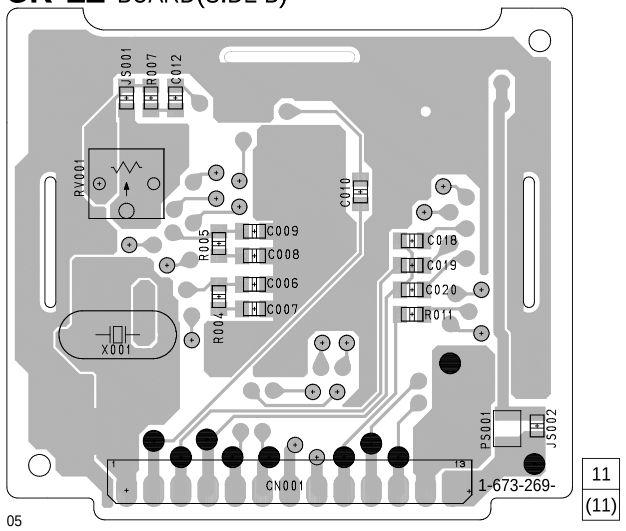
There are few cases that the part isn't mounted in this model is printed on this diagram.

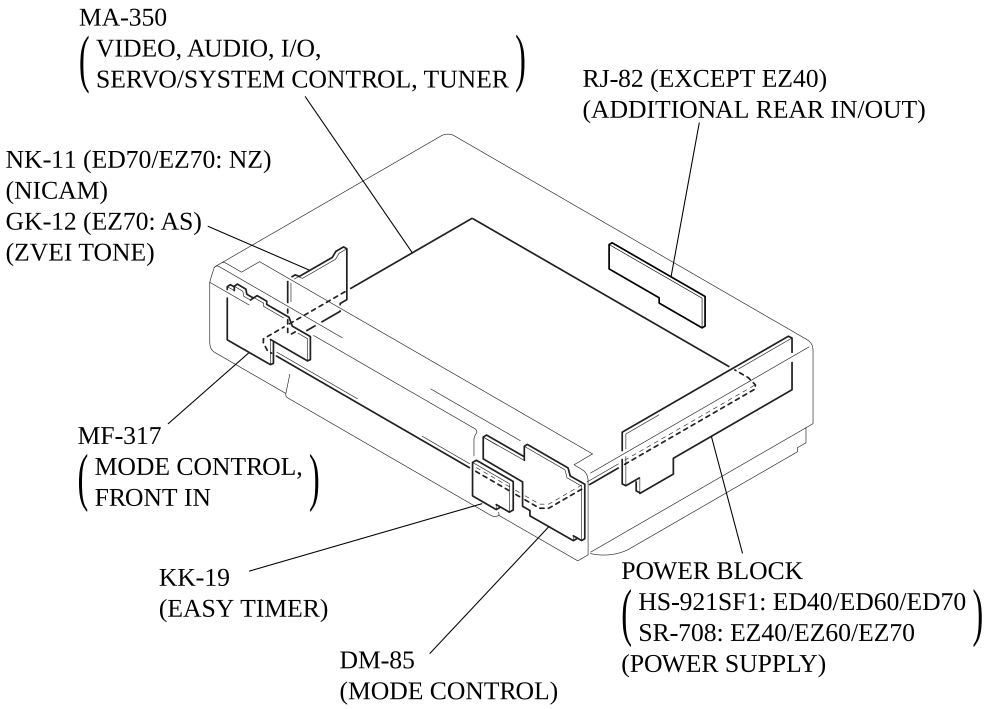


GK-12 BOARD(SIDE A)



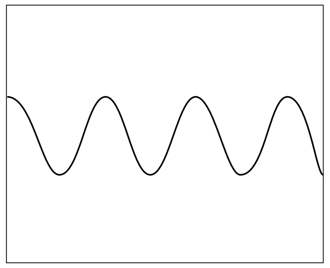
GK-12 BOARD(SIDE B)





• Waveform

❶ IC001 ⑮ REC/PB



148 mVp-p (4 MHz)

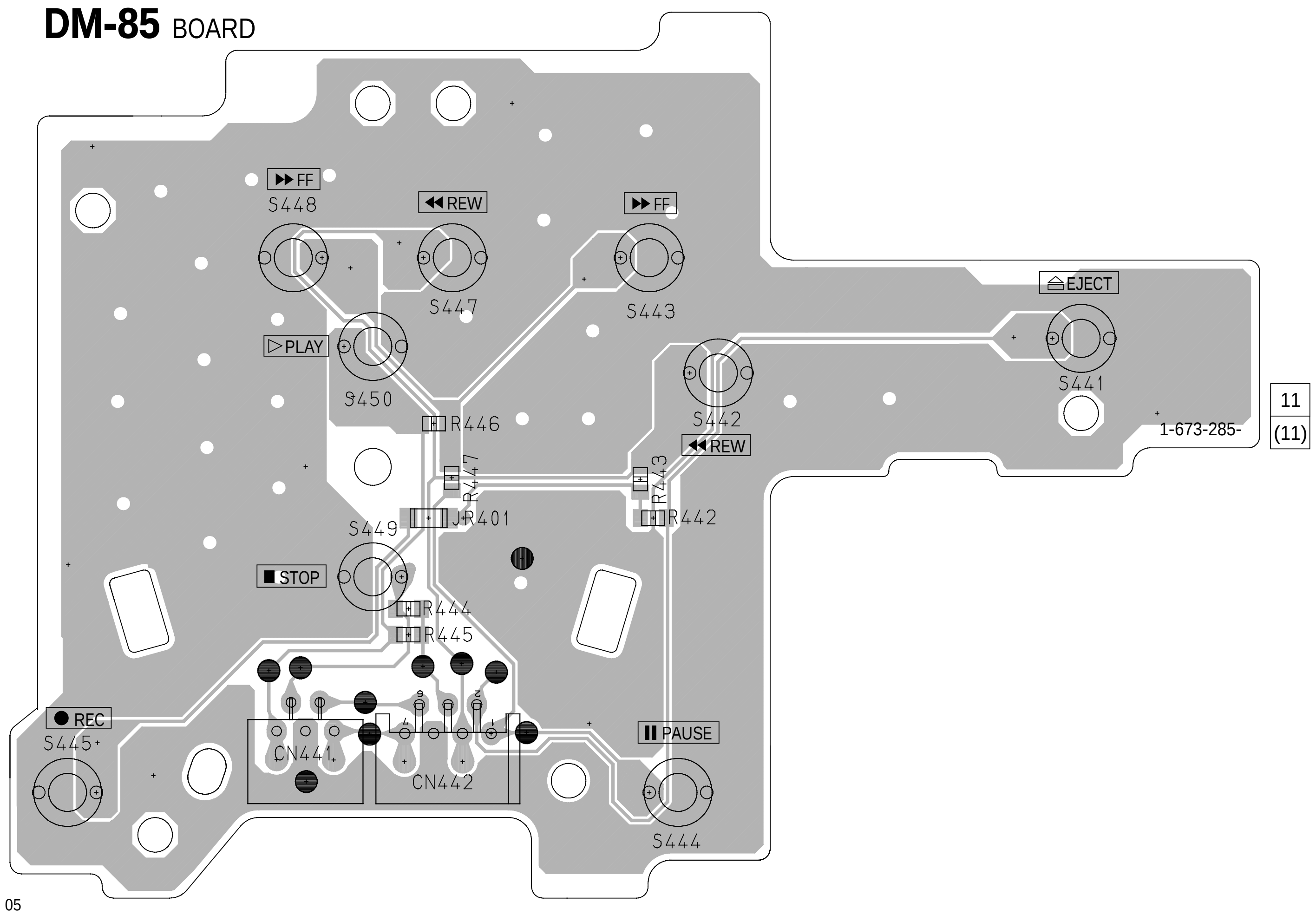
ZVEI TONE
GK-12

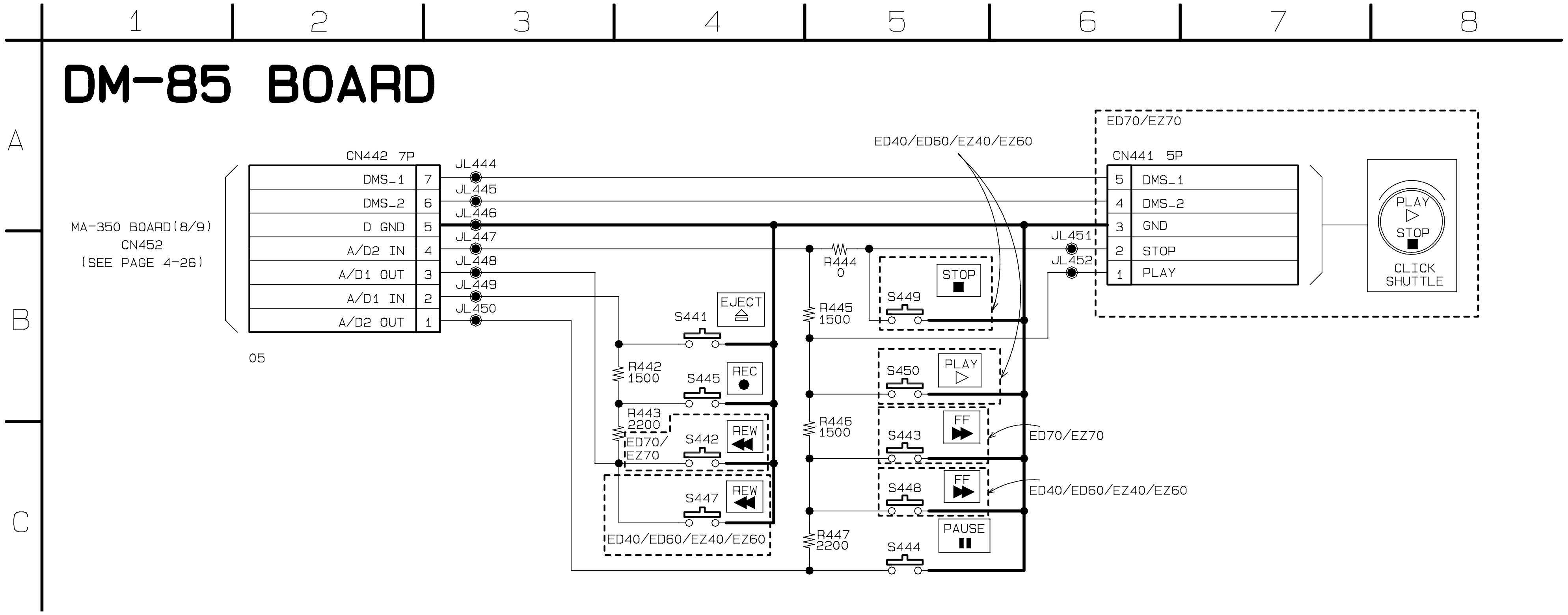
DM-85 (MODE CONTROL) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: DM-85 board; 2,000 series –

There are few cases that the part isn't mounted in this model is printed on this diagram.

– SLV-ED40/ED60/ED70/EZ40/EZ60/EZ70 –

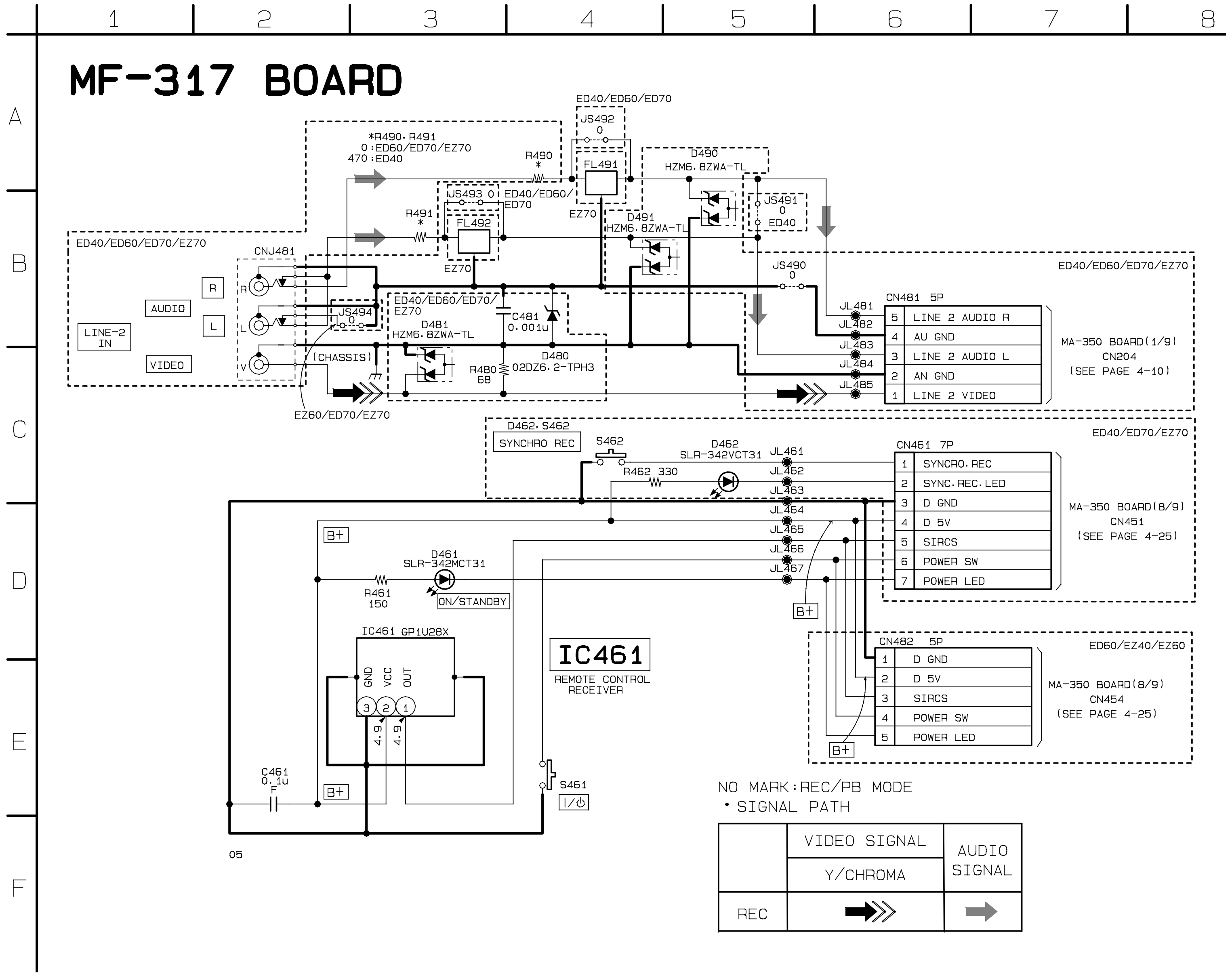


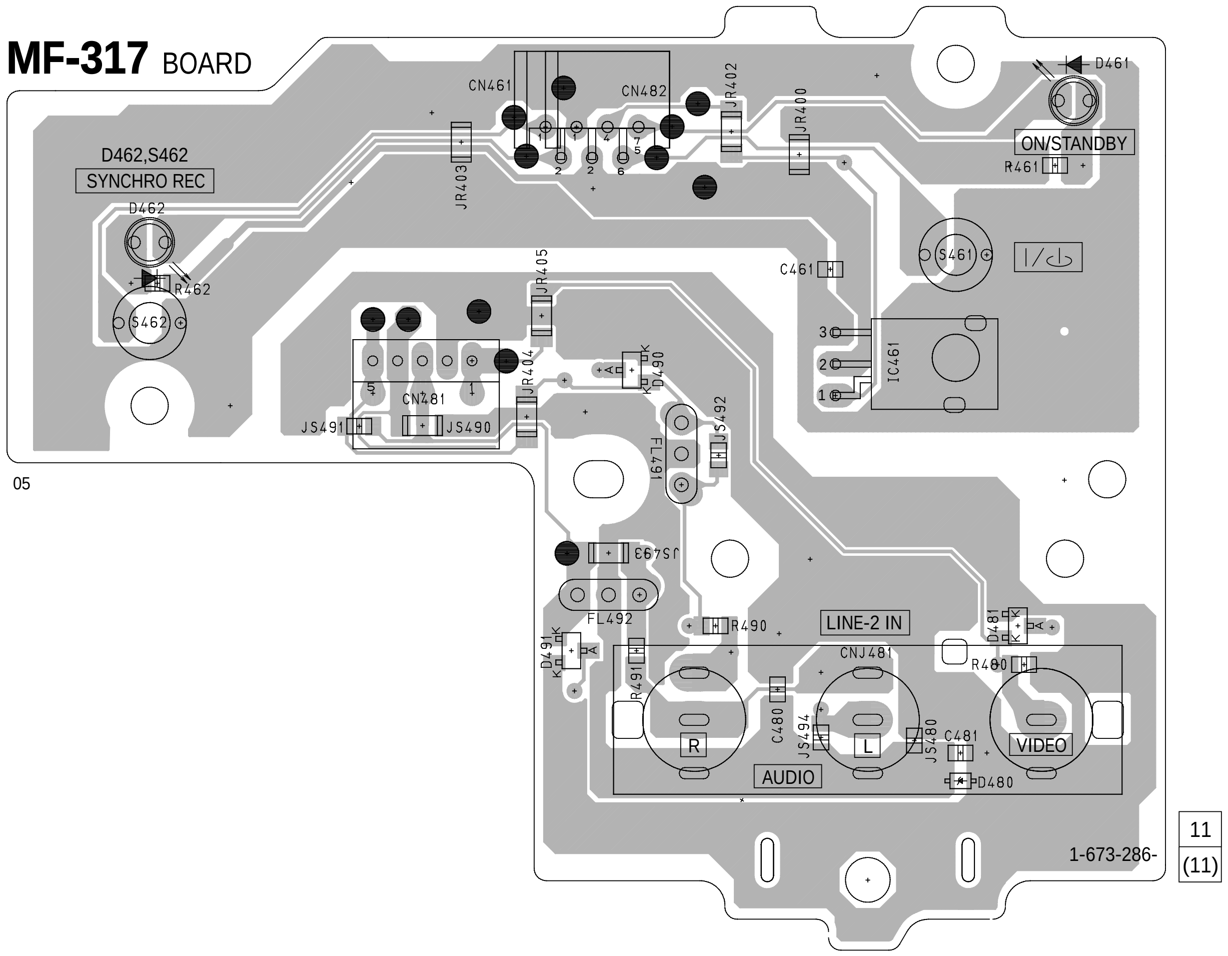


MF-317 (MODE CONTROL, FRONT IN) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM
– Ref. No.: MF-317 board; 2,000 series –

There are few cases that the part isn't mounted in this model is printed on this diagram.

– SLV-ED40/ED60/ED70/EZ40/EZ60/EZ70 –

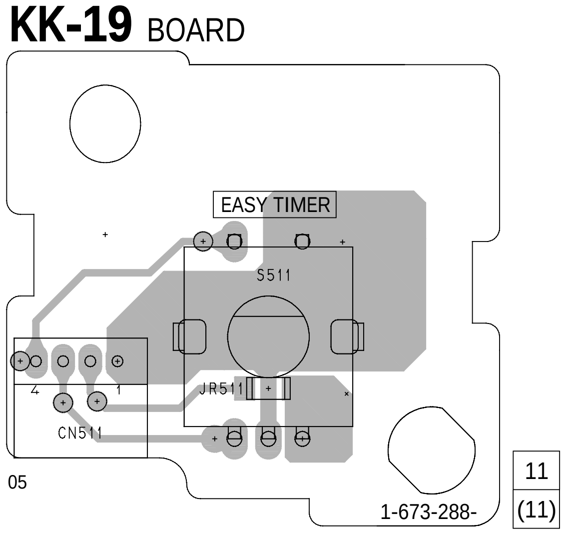


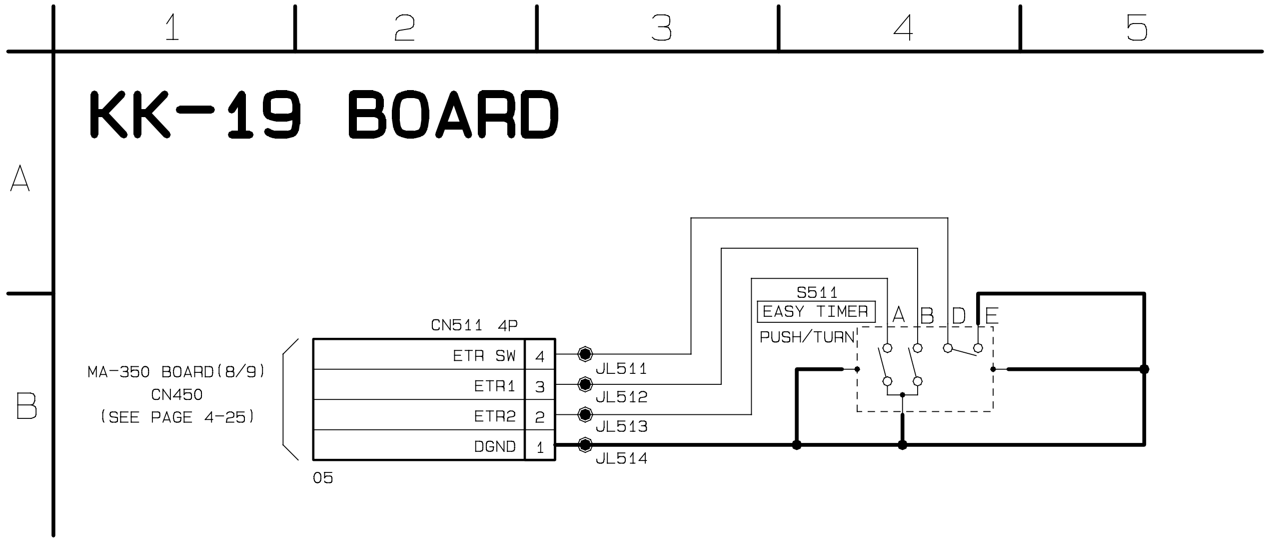


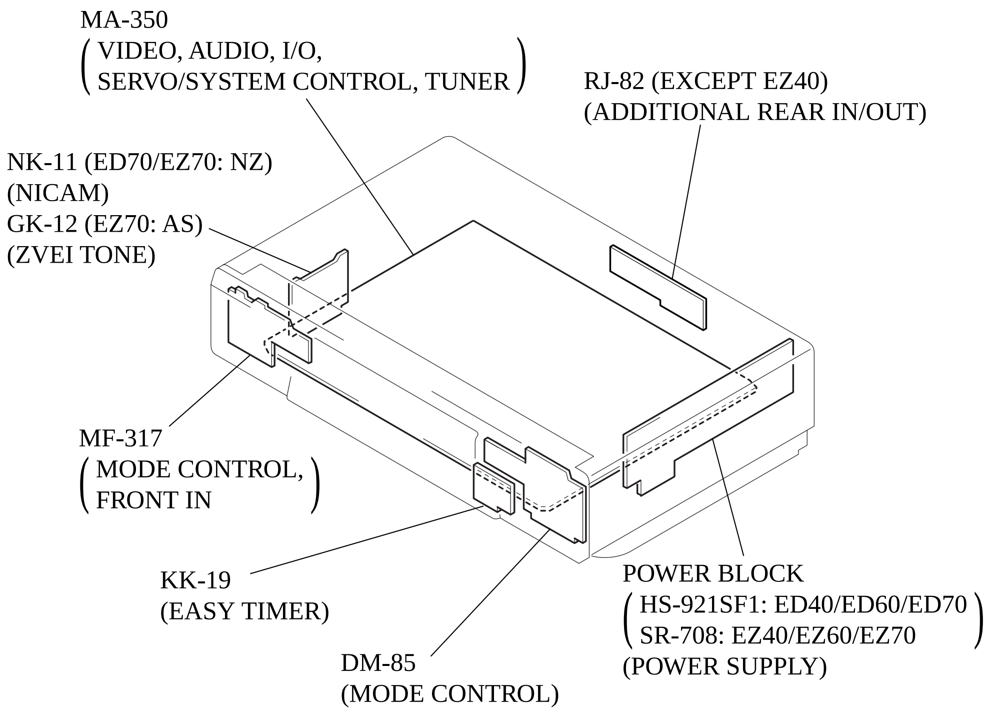
KK-19 (EASY TIMER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM
– Ref. No.: KK-19 board; 2,000 series –

– SLV-ED40/ED60/ED70/EZ40/EZ60/EZ70 –

There are few cases that the part isn't mounted in this model is printed on this diagram.







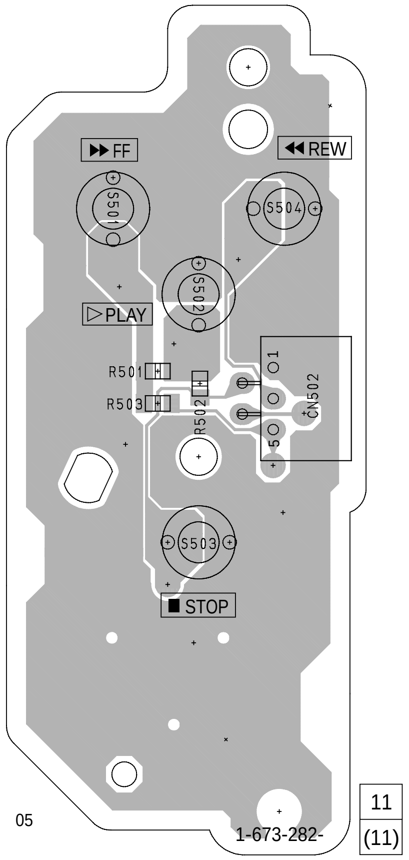
DS-85 (MODE CONTROL), KK-18 (EASY TIMER) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

– Ref. No.: DS-85 Board, KK-18 board; 1,000 series –

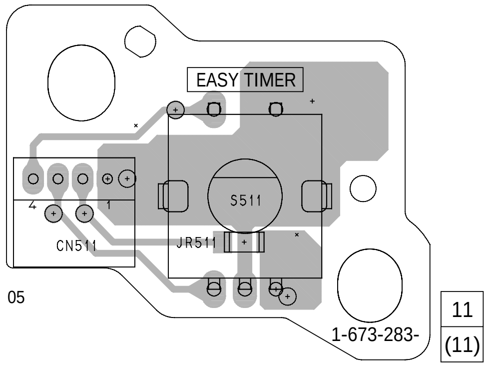
– SLV-ED10/EZ10 –

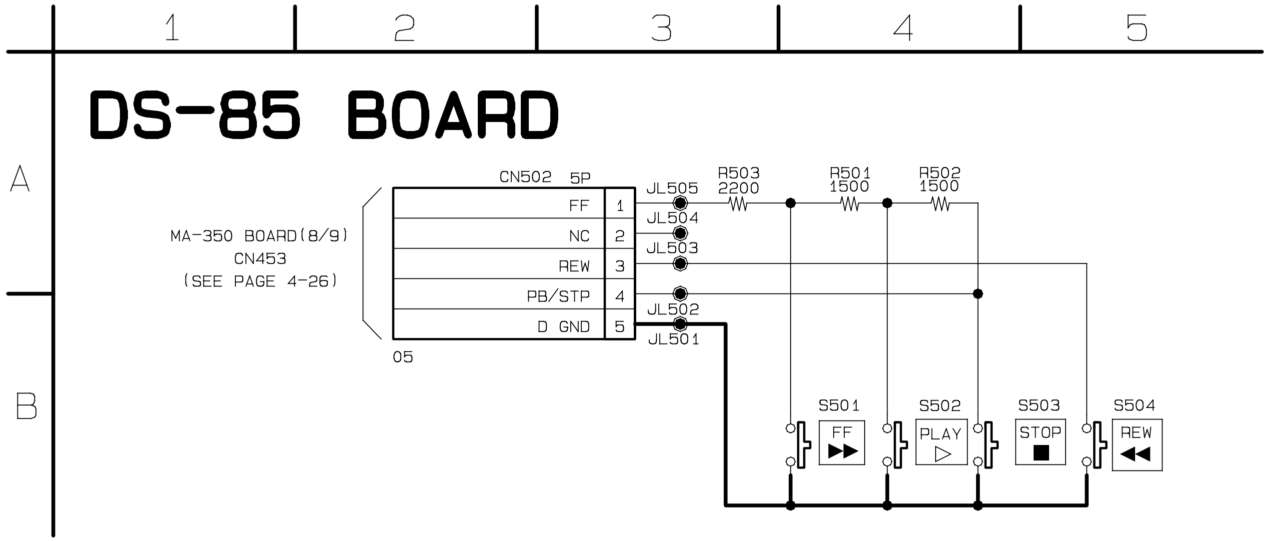
There are few cases that the part isn't mounted in this model is printed on this diagram.

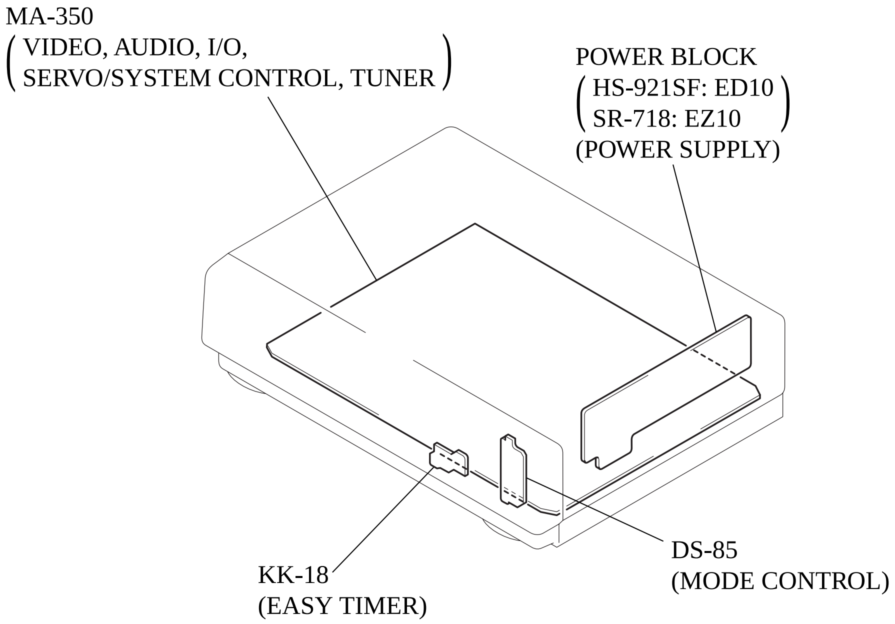
DS-85 BOARD

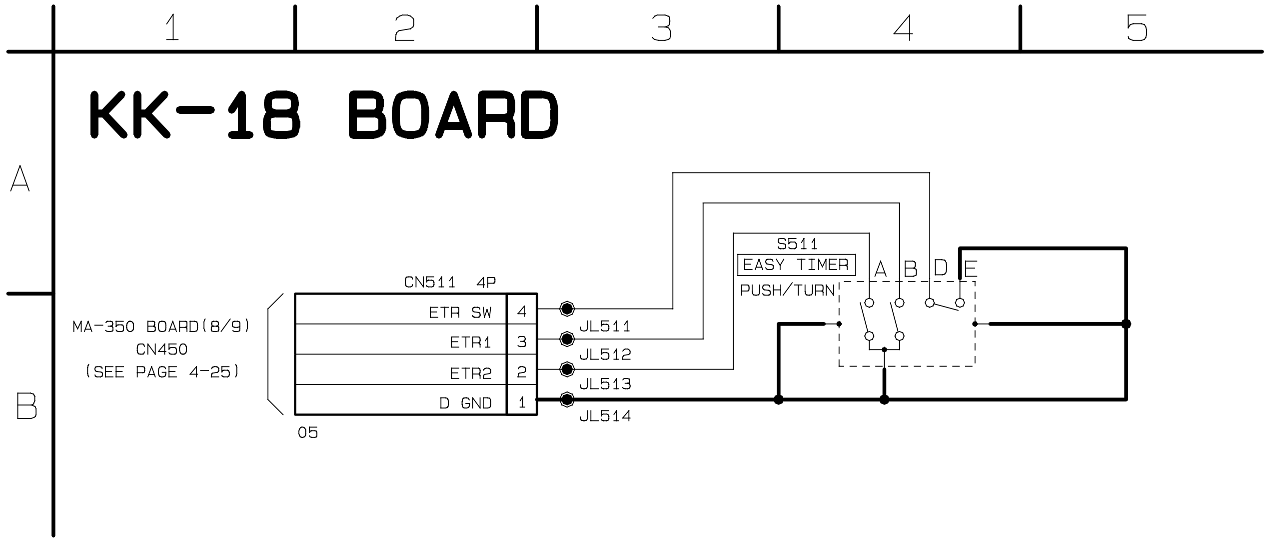


KK-18 BOARD









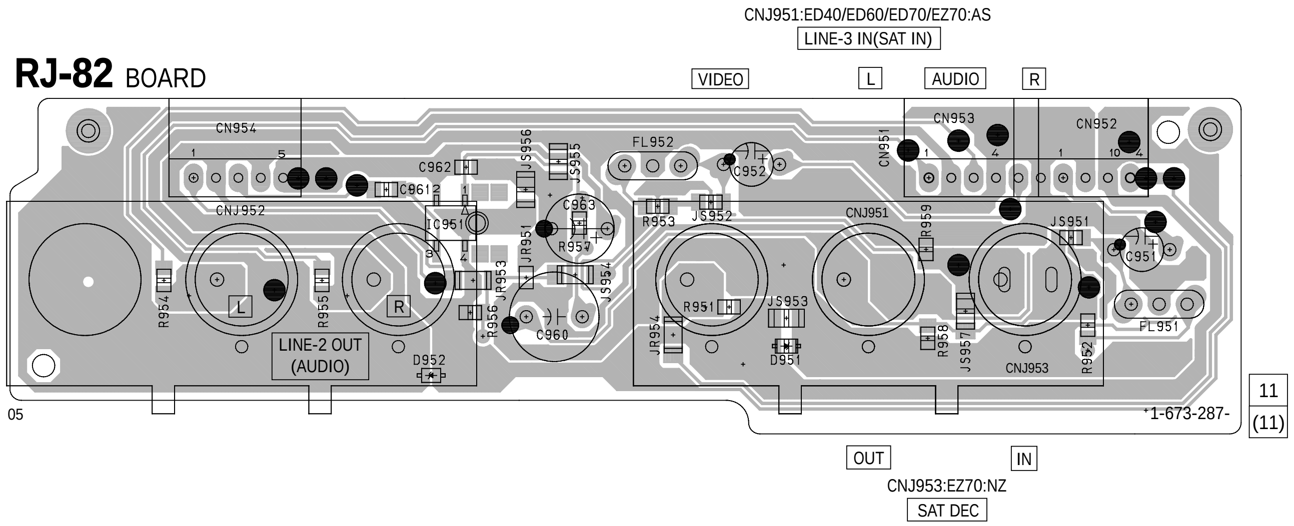
MODE CONTROL, EASY TIMER
DS-85, KK-18

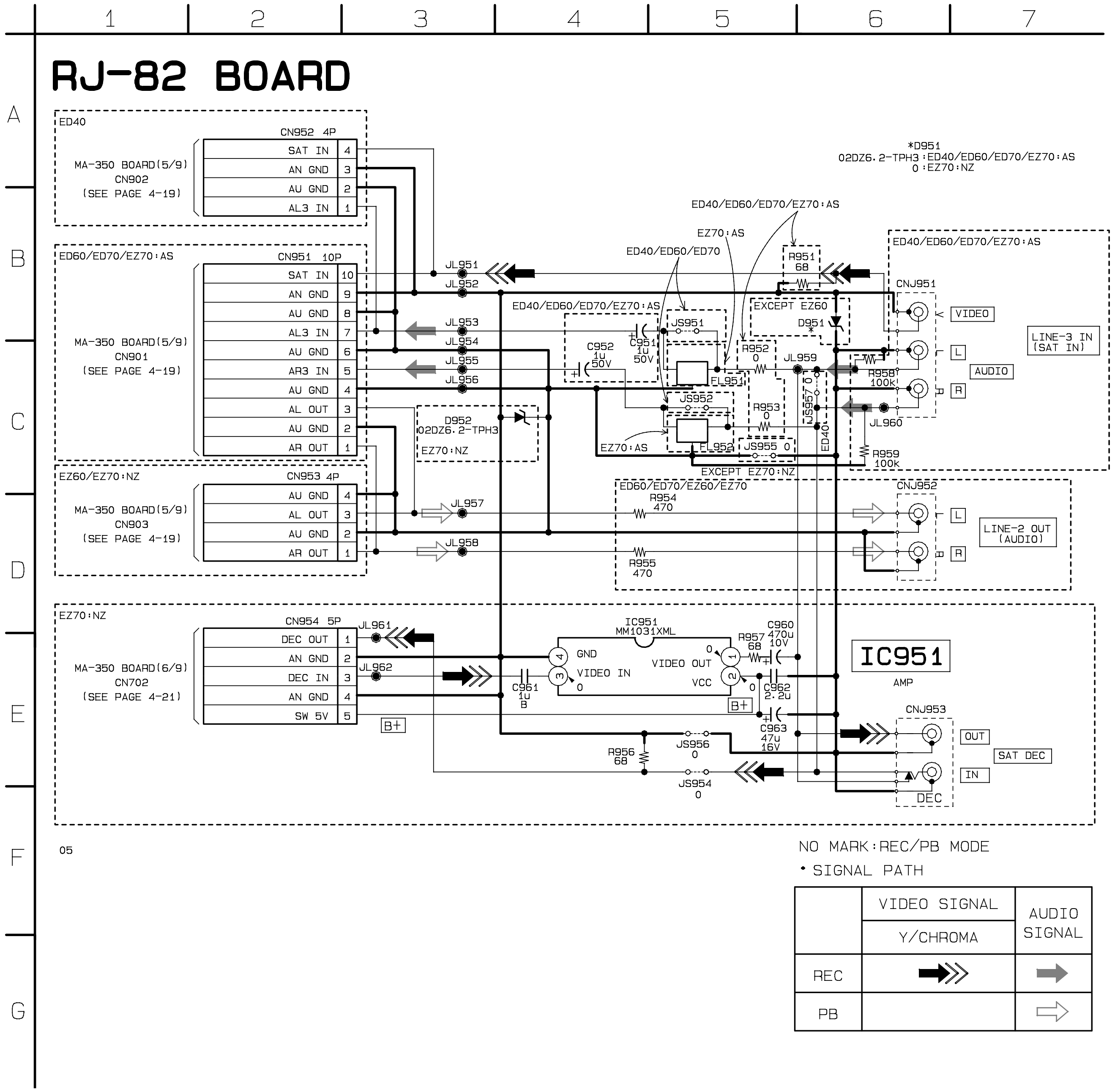
RJ-82 (ADDITIONAL REAR IN/OUT) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

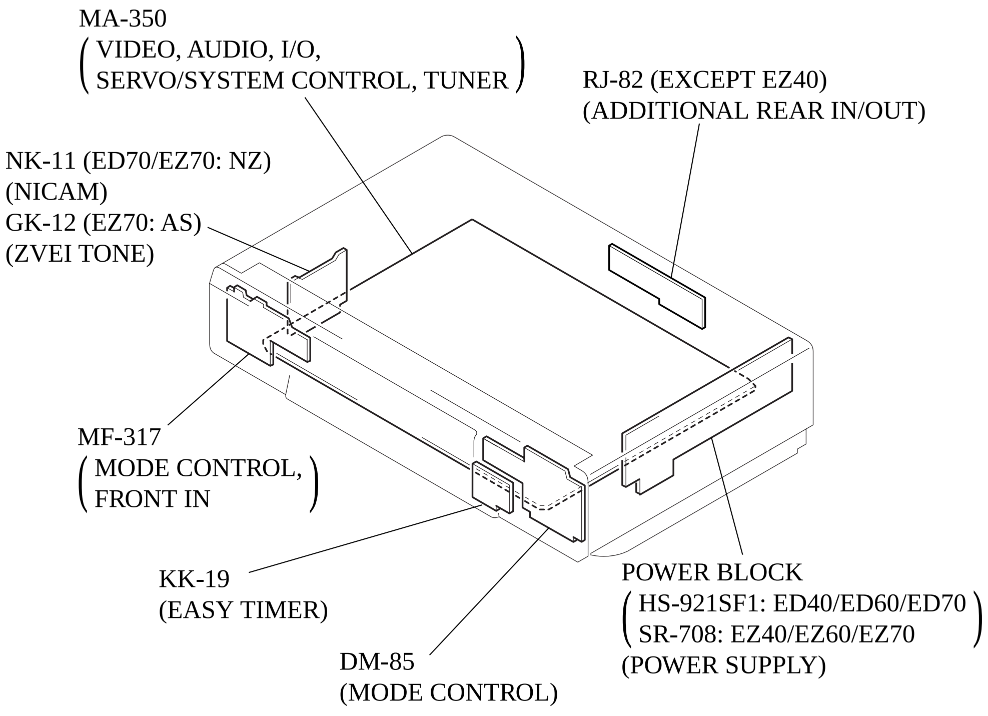
– Ref. No.: RJ-82 Board board; 1,000 series –

– SLV-ED40/ED60/ED70/EZ60/EZ70 –

There are few cases that the part isn't mounted in this model is printed on this diagram.





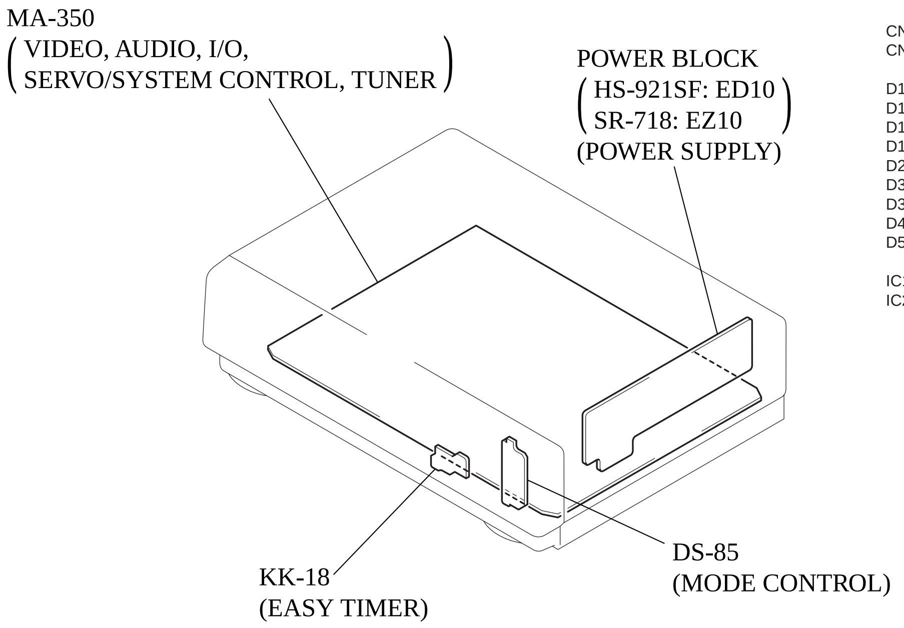


HS-921SF/921SF1 (POWER SUPPLY) PRINTED WIRING BOARD

– Ref. No.: HS-921SF/921SF1 board; 3,000 series –

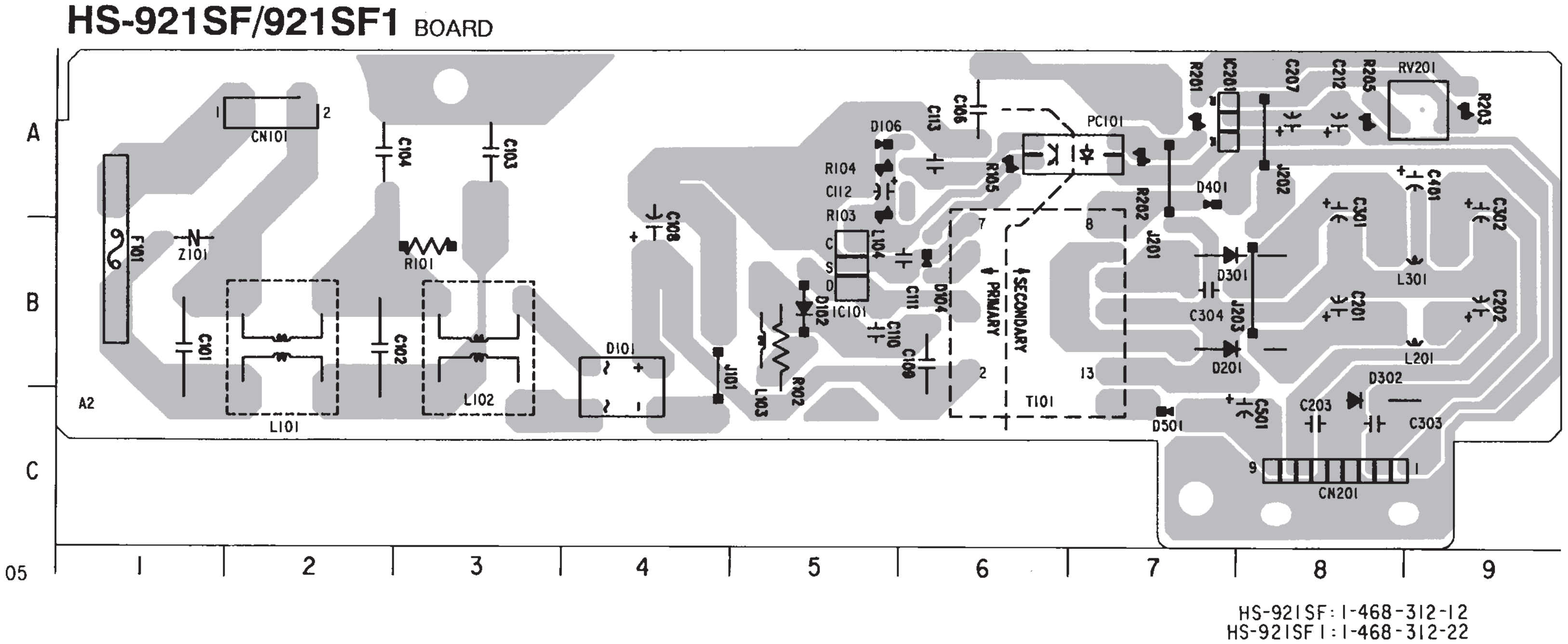
There are few cases that the part isn't mounted in this model is printed on this diagram.

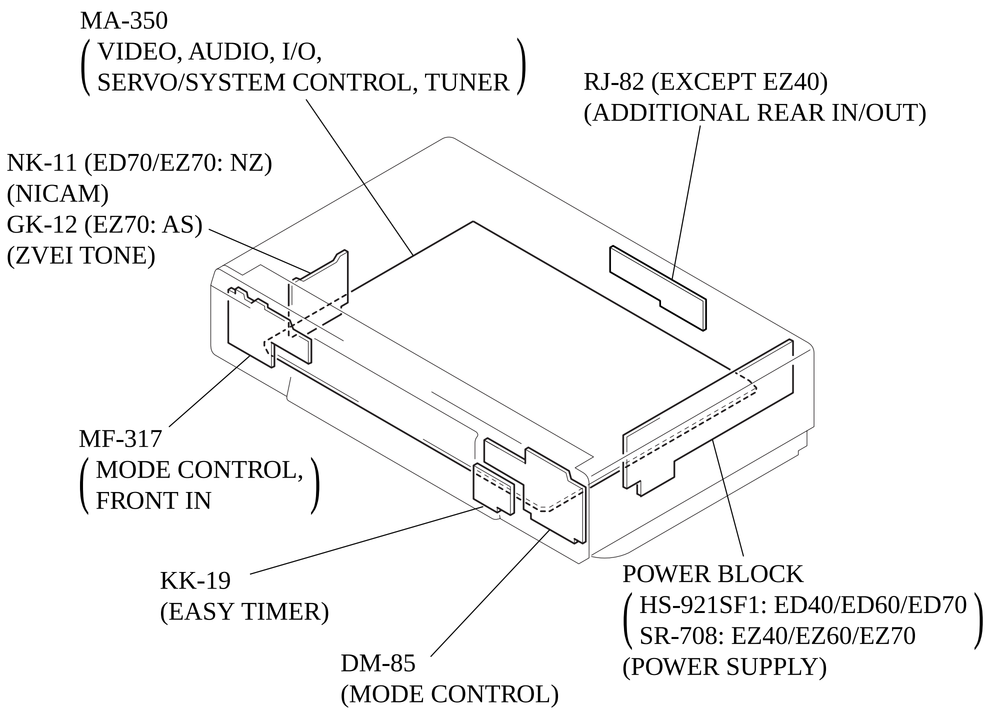
– SLV-ED10/ED40/ED60/ED70 –



HS-921SF/921SF1 BOARD

CN101	A-2
CN201	C-8
D101	B-4
D102	B-5
D104	B-6
D106	A-5
D201	B-7
D301	B-7
D302	C-8
D401	A-7
D501	C-7
IC101	B-5
IC201	A-7

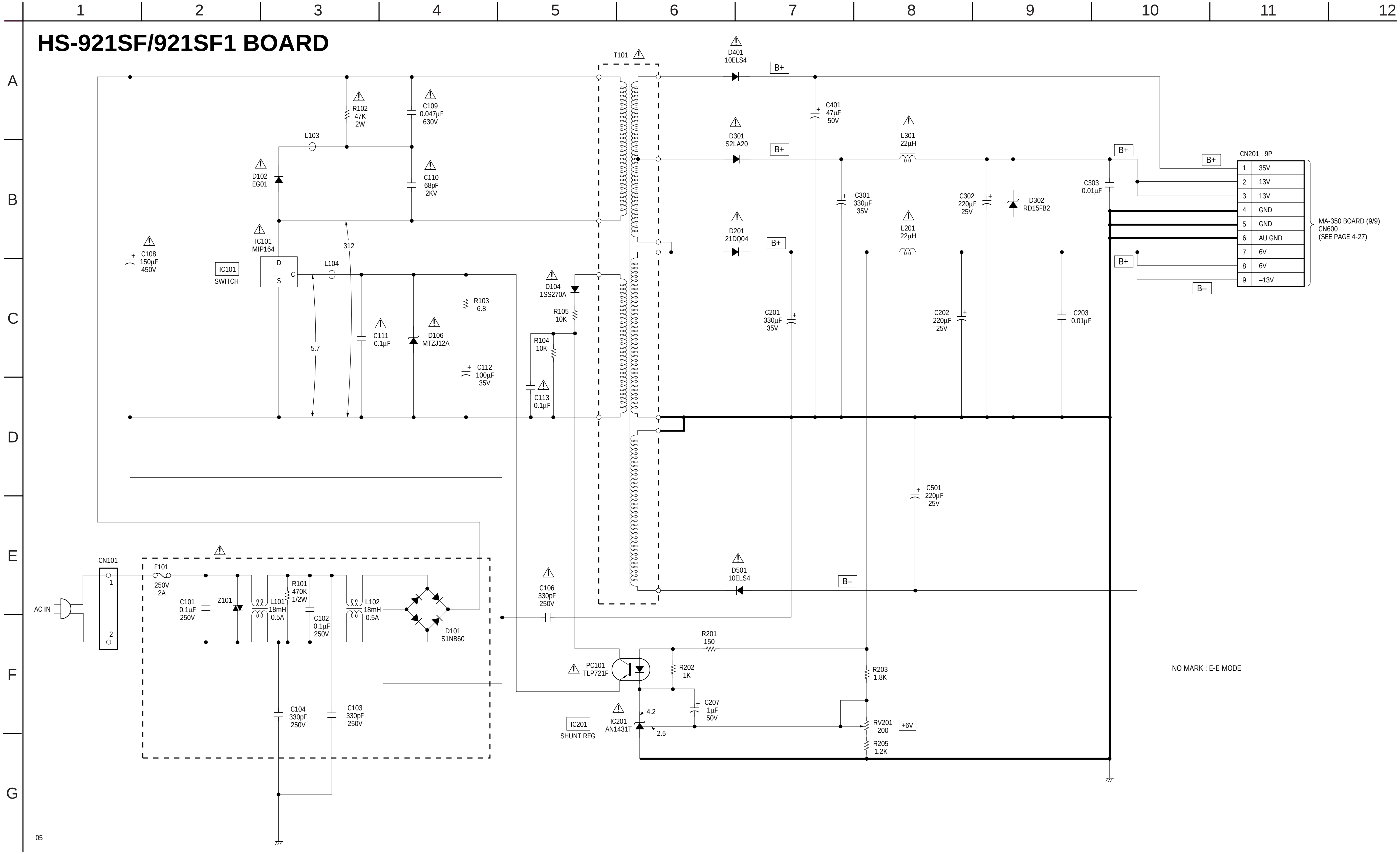




HS-921SF/921SF1 (POWER SUPPLY) SCHEMATIC DIAGRAM

– Ref. No.: HS-921SF/921SF1 board; 3,000 series –

– SLV-ED10/ED40/ED60/ED70 –



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

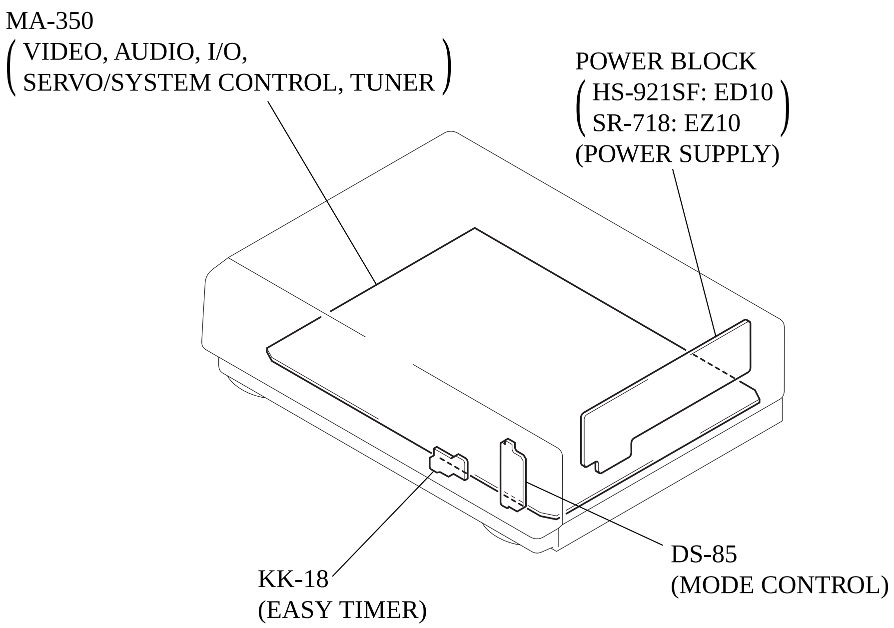
POWER SUPPLY
HS-921SF/921SF1

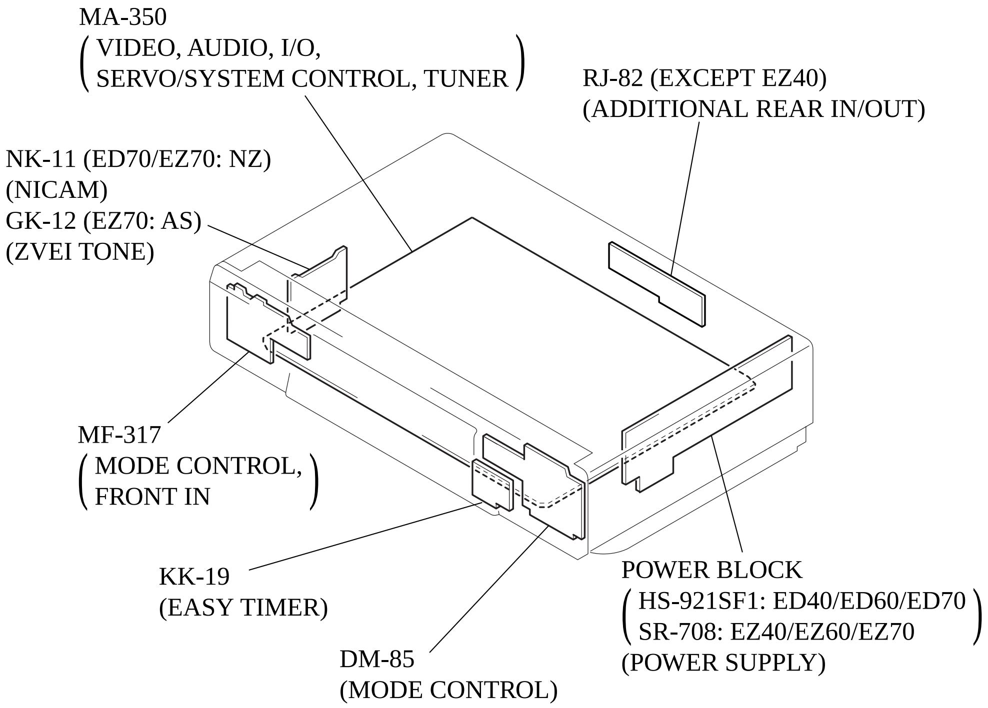
SR-708/718 (POWER SUPPLY) PRINTED WIRING BOARD

– Ref. No.: SR708/718 board; 4,000 series –

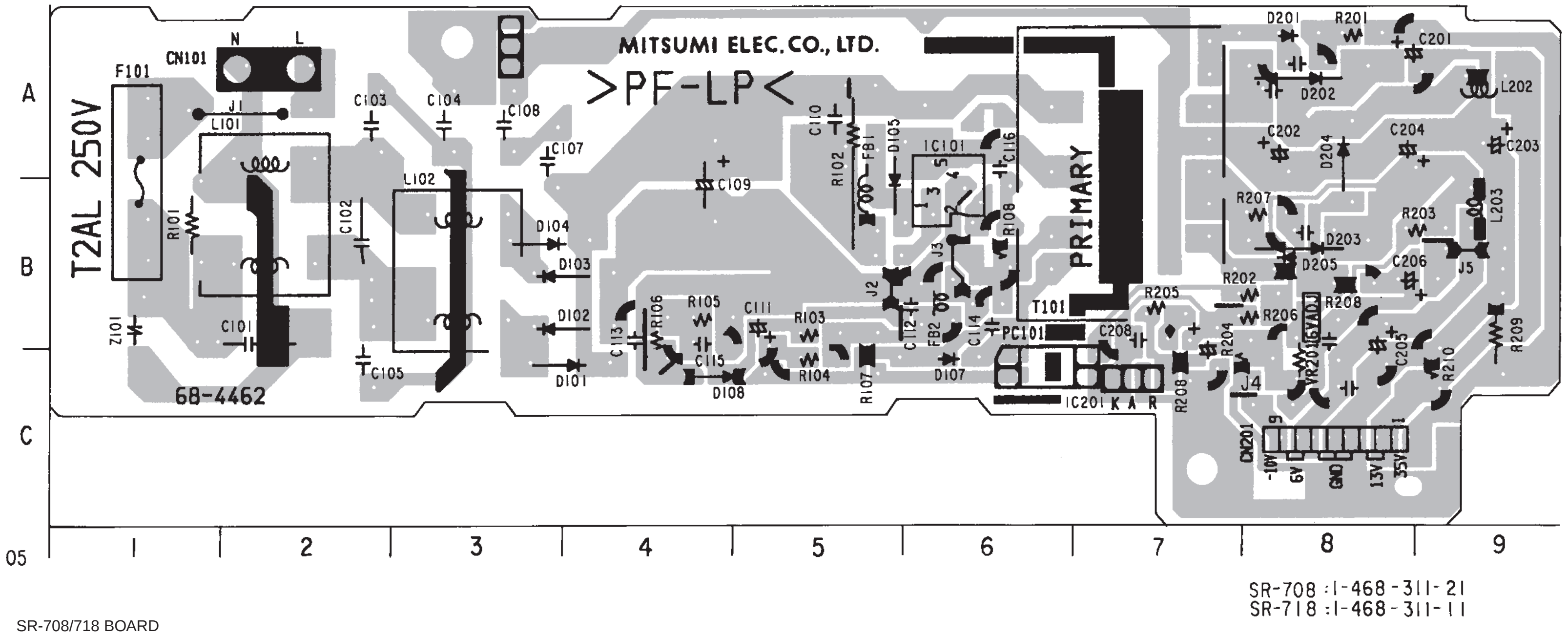
– SLV-EZ10/EZ40/EZ60/EZ70 –

There are few cases that the part isn't mounted in this model is printed on this diagram.





SR-708/718 BOARD



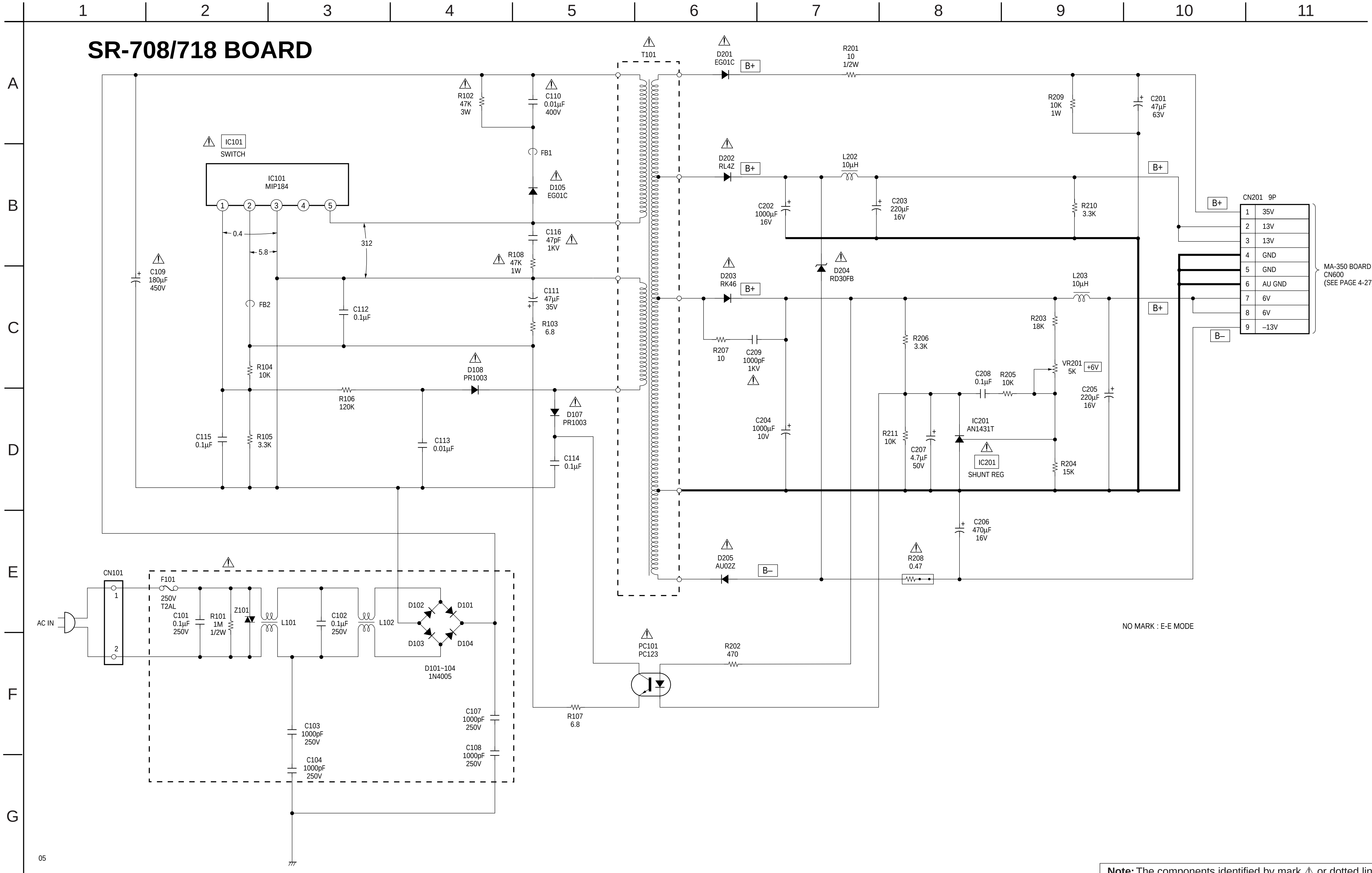
SR-708/718 BOARD

CN101	A-2
CN201	C-8
D101	C-3
D102	B-3
D103	B-3
D104	B-3
D105	B-5
D107	C-6
D108	C-4
D201	A-8
D202	A-8
D203	B-8
D204	A-8
D205	B-8
IC101	B-6
IC201	C-7

SR-708/718 (POWER SUPPLY) SCHEMATIC DIAGRAMS

– Ref. No.: SR-708/718 board; 4,000 series –

– SLV-EZ10/EZ40/EZ60/EZ70 –



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 5
INTERFACE, IC PIN FUNCTION DESCRIPTION

5-1. SYSTEM CONTROL – VIDEO BLOCK INTERFACE (MA-350 BOARD IC161)

Signal	Pin No.	I/O	STOP/ FF/ REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB • PAUSE	SLOW	×2	CUE	REVIEW	REC	REC • PAUSE
RF SWP	MA-350 IC161㉔	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
QVD	MA-350 IC161㉗	O	L	L	L	*2	*3	*3	*3	*3	*3	L	L
C SYNC	MA-350 IC161(54)	I	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4

*1. 25 Hz pulse with 50% duty cycle. Synchronized with rotation of drum.
*2. Normal PB "L". V period "H" pulse when ×1.
*3. V period "H" pulse.
*4. Composite sync signal (positive polarity).

5-2. SYSTEM CONTROL – SERVO PERIPHERAL CIRCUIT INTERFACE (MA-350 BOARD IC161)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB • PAUSE	SLOW	×2	CUE	REVIEW	REC	REC • PAUSE
CAP QR	MA-350 IC161(94)	O	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	*2	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z
DRUM PG	MA-350 IC161㊴	I	*3	*1	*1	*4	*4	*1	*1	*1	*1	*1	*1	*1	*1
DRUM FG	MA-350 IC161㊳	I	*3	*6	*6	*4	*4	*6	*6	*6	*6	*6	*6	*6	*6
CAP FG	MA-350 IC161㊵	I	H/L	*5	*5	*4	*4	*5	H/L	*5	*5	*5	*5	*5	H/L
CAP VS	MA-350 IC161㉕	O	*7	*7	*7	*7	*7	*8	*7	*7	*8	*8	*8	*8	*7
DRUM VS	MA-350 IC161㉖	O	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9

*1. 25 Hz (PAL), 30 Hz (NTSC) pulse.
*2. Pulse at tape running.
*3. "L" when drum rotation stop.
*4. Unstable period pulse.
*5. Pulse of period in proportion to tape speed.
*6. 300 Hz (PAL), 360 Hz (NTSC) pulse.
*7. Pulse at tape running.
*8. Approx. 2 msec period "H" or "L" pulse.
*9. Approx. 1.5 msec period "H" or "L" pulse.

5-3. SYSTEM CONTROL – MECHANISM BLOCK INTERFACE (MA-350 BOARD IC161)

Signal	Pin No.	I/O	EJECTED	CASSETTE LOADING	CASSETTE UNLOADING	TAPE THREAD-ING	TAPE UNTHREAD-ING	STOP	FF	REW	PB	PB • PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC • PAUSE
CAM	MA-350 IC161⑧③	O	Hi-Z	H	L	H	L	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
MODE 1	MA-350 IC161⑧④	I	H	L	L	*1	*1	H	H	H	H	H	H	H	H	L	H	H
MODE 2	MA-350 IC161⑧⑤	I	H	L	L	*1	*1	H	H	H	L	L	L	L	L	L	L	L
MODE 3	MA-350 IC161⑧⑥	I	L	L	L	*1	*1	H	L	L	L	L	L	L	L	H	L	L
MODE 4	MA-350 IC161⑧⑦	I	L	H	H	*1	*1	L	H	H	L	L	L	L	L	L	L	L
REC PRF	MA-350 IC161⑤⑤	I	H	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
T REEL	MA-350 IC161⑧⑧	I	H/L	H/L	H/L	H/L	H/L	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
S REEL	MA-350 IC161⑧⑨	I	H/L	H/L	H/L	*3	*3	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
END-LED	MA-350 IC161⑦④	O (O.D)	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
$\overline{\text{CAP RVS}}$	MA-350 IC161⑨③	I	L			H	L	H/L	H	L	H	H	H	H	H	L	H	H
T SENS	MA-350 IC161⑫	I	*4	*4	*4	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
S SENS	MA-350 IC161⑪	I	*4	*4	*4	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6

*1. Uncertainty.
*2. "L" when erasing protection tab is bent, "H" when not bent.
*3. Pulse of period in proportion to reel rotating speed.
*4. Approx. 2 msec period "H" pulse.
*5. Pulse at tape running.
*6. Normally "L". 2 msec period "H" pulse when tape top or tape end is detected.
*7. When transition to UNLOADING direction: L.
When transition to LOADING direction: H.
When CAM motor is stopped: Hi-Z.

5-4. SYSTEM CONTROL – AUDIO BLOCK INTERFACE (MA-350 BOARD IC161)

Signal	Pin No.	I/O	STOP/ FF/ REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB • PAUSE	SLOW	×2	CUE	REVIEW	REC	REC • PAUSE
AU RF	MA-350 IC161⑭	I	AF RF envelope signal input terminal for automatic tracking.										
A MUTE	MA-350 IC161⑲	O (O.D)	Hi-Z	Hi-Z	Hi-Z	Hi-Z	H	H	H	H	H	L	L
AF REC P	MA-350 IC161⑳	O	H	H	H	H	H	H	H	H	H	L	H
AF SWP	MA-350 IC161㉓	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
$\overline{\text{FULL ERASE}}$	MA-350 IC161(91)	O (O.D)	H	H	H	H	H	H	H	H	H	L	H
AF REC	MA-350 IC161(59)	O	L	L	L	L	L	L	L	L	L	H	H
REC P	MA-350 IC161(92)	O	L	L	L	L	L	L	L	L	L	H	L
NAPB	MA-350 IC161㉑	O	L	L	L	L	L	L	L	L	L	H	L

*1. 25 Hz (PAL), 30 Hz (NTSC) 50% duty pulse approx. 5 msec delayed from RF SW P.

5-5. SERVO/SYSTEM/TIMER/TUNER/MODE CONTROL, OSD MICROPROCESSOR PIN FUNCTION (MA-350 BOARD IC161)

Pin No.	Pin Name	I/O	Function
1	SW1	O	Tuner system control-1 signal output
2	AN GND	–	Analog ground
3	APC ERROR	I	APC error voltage signal input
4	DMS UP	I	Click shuttle forward/reverse signal input (DMS models only)
5	FUNC. KEY2	I	Function key analog voltage signal input
6	TU AFT	I	Auto fine tuning signal input
7	FUNC. KEY1	I	Function key analog voltage signal input
8	POWER FAIL	I	Power failure detect signal input
9	DMS DOWN	I	Click shuttle forward/reverse signal input (DMS models only)
10	DEST	I	Destination set signal input
11	S SENS	I	Supply end sensor signal input
12	T SENS	I	Take up end sensor signal input
13	VIDEO RF	I	Video RF envelop signal input
14	AU RF	I	Hi-Fi audio envelop signal input
15	AN 5V	–	Power supply analog 5V
16	RESET	I	Reset signal input
17	3.58/4.43	O	NTSC color freq. judge signal output
18	PAL	O	“H”: PAL (video block control signal output)
19	ETR1	I	Easy timer knob pulse-1 signal input
20	ETR2	I	Easy timer knob pulse-2 signal input
21	NAPB	O	Normal audio PB signal output
22	VCC	–	Power supply unswitch 5V
23	AF SWP	O	AF switching pulse signal output
24	RF SWP	O	RF switching pulse signal output
25	CAP VS	O	Capstan error signal output
26	DRUM VS	O	Drum motor error signal output
27	QVD	O	Quasi VD pulse signal output
28	N.C.	–	Not used
29	H.AMPSW	O	“H”: A-DUB mode (CTL amp. gain control signal output)
30	N.C.	–	Not used
31	CTL (+)	I/O	CTL head signal input/output (REC mode)
32	CTL (-)	I/O	CTL head signal input/output (REC mode)
33	VSS (SERVO)	–	Servo ground
34	CTL-AMP1	I	CTL amp. control signal input (gain set)
35	CTL-AMP2	I	CTL amp. control signal input (gain set)
36	CTL-AMP3	I	CTL amp. control signal input (gain set)
37	CTL-AMP OUT	O	CTL amp. control signal output (for check)
38	DRUM FG	I	Drum FG schmitt amp. input
39	DRUM PG	I	Drum PG schmitt amp. input
40	CAP FG	I	Capstan FG schmitt input
41	VCC (SERVO)	–	Power supply unswitch 5V
42	VCC (OSD)	–	Power supply OSD 5V
43	CV IN	I	Composite video signal input
44	VREF	I	Reference bias and clamp bias power signal input
45	CV OUT	O	Composite video signal output
46	N.C.	–	Not used
47	AFC LPF	I	AFC LPF signal input
48	AFC OSC	I	AFC oscillation signal input
49	VSS (OSD)	–	OSD ground
50	DOSC-IN	I	OSC dot clock oscillator signal input

Pin No.	Pin Name	I/O	Function
51	DOSC-OUT	O	OSC dot clock oscillator signal output
52	4FSC-OUT	O	OSC 4fsc oscillator terminal signal output
53	4FSC-IN	I	OSC 4fsc oscillator terminal signal input
54	CSYNC	I	Composite sync signal input
55	REC PRF	I	Erasing protection tab. cassette in detection signal input
56	IIC DATA	O	EEP ROM, Hi-Fi IC, tuner/serial communication data signal output
57	IIC CLOCK	O	EEP ROM, Hi-Fi IC, tuner/serial communication clock signal output
58	DRUM QR	O	Drum motor step driving signal output
59	AF REC	O	“H”: output when Hi-Fi audio REC
60	AF REC P	O	“L”: output when Hi-Fi audio REC pause
61	N.C.	–	Not used
62	IIC CLOCK (VIDEO)	O	Video, video amp. serial communication clock signal output
63	IIC DATA (VIDEO)	O	Video, video amp. serial communication data signal output
64	BLUE BACK	O	OSD block control signal output
65	APC PWM	O	APC PWM signal output
66	CAP TRQ PWM	O	Capstan TRQ PWM signal output
67	N.C.	–	Not used
68	TEST	I	Fixed to ground
69	32kHz-IN	I	Timer clock terminal (32kHz) input
70	32kHz-OUT	O	Timer clock terminal (32kHz) output
71	VSS	–	Ground
72	10MHz-IN	I	System clock terminal (10MHz) input
73	10MHz-OUT	O	System clock terminal (10MHz) output
74	END-LED	O	Top/end LED on/off control signal output
75	POWER CONT	O	Power supply control signal output
76	N.C.	–	Not used
77	N.C.	–	Not used
78	OSD SEL	O	OSD XÅftal select (PAL/NTSC) signal output
79	A MUTE	O	“H”: audio mute signal output
80	WRITE CONT	O	EEP ROM write timing control signal output
81	IN SEL	O	Line-input selection control signal output
82	REMOCON	I	Remote control (SIRCS) signal input
83	CAM	O	CAM motor control signal output
84	MODE1	I	Mechanism section CAM encoder data 1 input
85	MODE2	I	Mechanism section CAM encoder data 2 input
86	MODE3	I	Mechanism section CAM encoder data 3 input
87	MODE4	I	Mechanism section CAM encoder data 4 input
88	T REEL	I	T side reel FG input
89	S REEL	I	S side reel FG input
90	FLD CS	O	FIP driver chip select signal output
91	FULL ERASE	O	Full erase head on/off control signal output
92	REC P	O	“L”: output when REC pause
93	CAP RVS	O	Capstan reverse control signal “H”: when reverse
94	CAP QR	O	Capstan step driving signal output
95	S CLOCK	O	Serial communication clock signal output
96	S IN	I	Serial communication data signal input
97	S OUT	O	Serial communication data signal output
98	PLL CLOCK	O	Tuner PLL clock signal output
99	TU ENABLE	O	Tuner PLL chip select signal output
100	PLL DATA	O	Tuner PLL data signal output

5-6. NICAM PROCESSOR PIN FUNCTION (NK-11 BOARD IC1)

Pin. No.	Pin Name	I/O	Function
1	OUT L	O	Analog signal output left
2	OUT R	O	Analog signal output right
3	VDD A1	–	Analog power supply 5V; DAC circuitry
4	VSS A1	–	Analog ground; DAC circuitry
5	VSS D1	–	Digital ground; DAC circuitry
6	VDD D1	–	Digital power supply 5V; DAC circuitry
7	VSS D2	–	Digital ground; DSP part
8	VDD D2	–	Digital power supply 5V; DSP part
9	TP2	I	Additional test pin 2; connected to ground for normal operation
10	N.C.	–	Not used
11	TP1	I	Additional test pin 1; connected to ground for normal operation
12	N.C.	–	Not used
13	N.C.	–	Not used
14	V TUNE	O	Tuning voltage output for crystal oscillator
15	XTAL I	I	Crystal oscillator input
16	XTAL O	O	Crystal oscillator output
17	TEST2	I	Test pin 2; connected to ground for normal operation
18	I REF	I	Resistor for reference current generation; front end circuitry
19	N.C.	–	Not used
20	VSS A2	–	Analog ground; analog front end circuitry
21	VDD A2	–	Analog power supply 5V; analog front end circuitry
22	TEST1	I	Test pin 1; connected to ground for normal operation
23	SIF2	I	Sound IF input 2
24	V REF1	I	Reference voltage; analog front end circuitry
25	SIF1	I	Sound IF input 1
26	C RST		Capacitor for power-on reset
27	VSS D3	–	Digital ground; front end circuitry
28	VDD D3	–	Digital power supply 5V; front end circuitry
29	SCL	I	Serial communication clock signal input
30	SDA	I	Serial communication data signal input
31	N.C.	–	Not used
32	N.C.	–	Not used
33	N.C.	–	Not used
34	N.C.	–	Not used
35	VDD D4	–	Digital power supply 5V; demodulator circuitry
36	VSS D4	–	Digital ground; demodulator circuitry
37	N.C.	–	Not used
38	N.C.	–	Not used
39	EXTI R	I	External audio input right channel
40	EXTI L	I	External audio input left channel
41	V REF2	I	Analog reference voltage digital-to-analog converter and operational amplifiers
42	N.C.	–	Not used
43	VDD A3	–	Analog power supply 5V; operational amplifiers
44	VSS A3	–	Analog ground; operational amplifiers

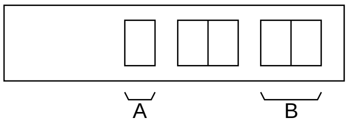
5-7. ZWEITON PROCESSOR PIN FUNCTION (GK-12 BOARD IC001)

Pin. No.	Pin Name	I/O	Function
1	OUT L	O	Audio left signal output
2	OUT R	O	Audio right signal output
3	CDE1	–	De-emphasis 1 capacitor
4	N.C.	–	Not used
5	N.C.	–	Not used
6	CDE2	–	De-emphasis 2 capacitor
7	A GND	–	Analog ground
8	AF1 I	I	Audio 1 signal input
9	N.C.	–	Not used
10	AF1 O	O	Audio 1 signal output
11	N.C.	–	Not used
12	N.C.	–	Not used
13	AFR	I	AF 1/2 signal return
14	LF1	–	Loop filter 1
15	XTAL	I	4MHz reference input
16	N.C.	–	Not used
17	N.C.	–	Not used
18	LF2	–	Loop filter 2
19	N.C.	–	Not used
20	N.C.	–	Not used
21	MAD	I	Programmable address bit (module address)
22	N.C.	–	Not used
23	N.C.	–	Not used
24	CAF1	O	AF1 capacitor
25	IF INT	I	IF intercarrier input
26	CAF2	O	AF2 capacitor
27	D GND	–	Digital ground
28	VCC	–	Power supply 5V
29	SCL	I	Serial communication clock input
30	SDA	I/O	Serial communication data input and output
31	LPF	–	Pilot loop filter
32	AF2 O	O	Audio 2 signal output
33	AF2 I	I	Audio 2 signal input
34	CTR IG	–	Trigger capacitor
35	CID	–	Identification capacitor
36	N.C.	–	Not used
37	P1	O	Output port 1
38	EXT M	I	External audio input monaural channel
39	EXTI R	I	External audio input right channel
40	EXTI L	I	External audio input left channel
41	V REF	I	Analog reference voltage digital-to-analog converter and operational amplifiers
42	P2	O	Output port 2
43	OUT M	O	Audio monaural signal output
44	N.C.	–	Not used

SECTION 6
ERROR CODES

This set displays an error code, and a mode code in case of error on the display tube, if the operation stopped by error.
The following provides description concerned.

Display tube (lower 5 digits)



A: Error code .... Table 6-1
B: Mode code in case of error .... Table 6-2

These codes are displayed at lower 5-digit positions of display tube.
In this case, " : " between digits is not displayed.

Table 6-1. Error Codes

Code	Description
0	NO ERROR
1	CAM ENCODER ERROR, LOAD DIRECTION
2	CAM ENCODER ERROR, UNLOAD DIRECTION
3	T REEL ERROR
4	S REEL ERROR
5	CAPSTAN ERROR
6	DRUM ERROR
7	INITIALIZE ERROR
8	CASSETTE UNLOADING ERROR
9	RESERVED

Table 6-2. Mode Codes in Case of Error

Code	Description
0	EJECT (POWER ON)
1	EJECT (POWER OFF)
2	UNLOAD STOP
3	STOP (POWER ON)
4	POWER OFF (CASSETTE IN)
5	F. FWD
6	REW
7	LOW SPEED F. FWD
8	LOW SPEED REW
9	STANDBY
10	REC
11	REC (VISS)
12	REC PAUSE
13	PLAY
14	A. DUB
15	A. DUB PAUSE
16	CUE
17	REV
18	STILL (MECHA FWD)
19	FWD FRAME BY FRAME (FWD SLOW)
20	STILL (MECHA RVS)
21	RVS FRAME BY FRAME (RVS SLOW)

SECTION 7
ADJUSTMENTS

During the adjustment, see the Parts Arrangement Diagram for Adjustments on Page 7-6.

7-1. MECHANICAL ADJUSTMENTS

Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT VI.

7-2. ELECTRICAL ADJUSTMENTS

2-1. PRE-ADJUSTMENT PREPARATIONS

Necessary items and indications for total adjustment of electric circuit of this machine will be described in this chapter.

2-1-1. Instruments to be Used

1) Color TV
2) Oscilloscope 1 or 2 phenomena, band more than 30 MHz, delay mode, as provided.
3) NTSC pattern generator
4) PAL pattern generator
5) Digital voltmeter
6) Audio level meter
7) Audio noise meter
8) Audio generator
9) Attenuator
10) Alignment tape
    Part Code: 8-192-605-36 KRV-51P (PAL)
    Part Code: 8-192-605-32 KRV-51N2 (NTSC)

2-1-2. Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown in the following diagram.

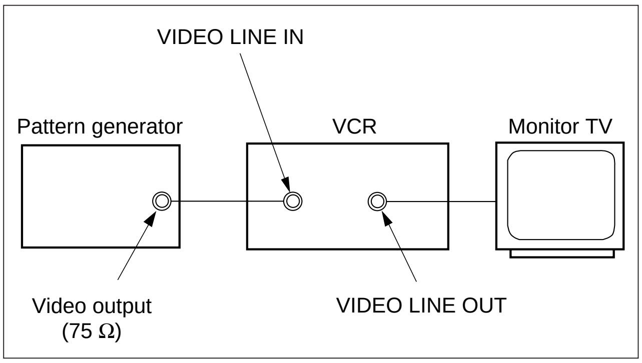


Fig. 7-2-1

2-1-3. Set-up of Adjustment

In this adjustment, PAL or NTSC pattern generator is connected with LINE input signal terminal. When checking with tuner, connected AERIAL terminal. Check that the amplitudes of video signal SYNC signal, of picture portions, and of burst signals are flat at approximately 0.3, 0.7 and 0.3 V, respectively, and that the level ratio of the burst signal and "red" signal are 0.30: 0.66. Fig. 7-2-2. shows video signals (color bars) used in adjusting the video section.

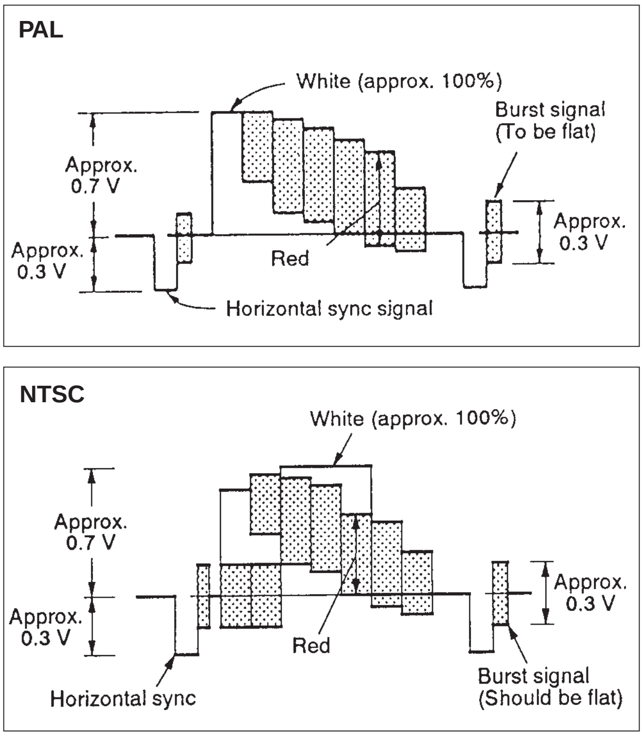


Fig. 7-2-2

2-1-4. Alignment Tapes
[Alignment Tape (KRV-51N2/KRV-51P)]

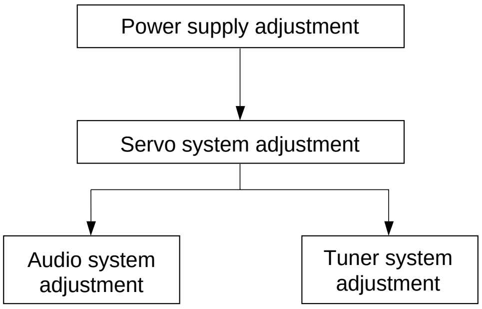
	Mode	Time	Video signal	Audio signal (HiFi/Normal)
1	SP	Seven minutes	Color bar	400 Hz
2	SP	Three minutes	Monoscope	
3	EP	Seven minutes	Color bar	
4	EP	Three minutes	Monoscope	

2-1-5. Specified I/O Level and Impedance
Input/output terminal

Video inputs	LINE IN : phono jack
	1 Vp-p, 75 Ω, unbalanced, sync negative
Audio inputs	LINE IN : phono jacks
	47 kW, –7.5 dBs (0 dBs = 0.775 Vrms)
	More than 10 kW, –4 dBs
Video outputs	LINE OUT: phono jack
	1 Vp-p, 75 Ω, unbalanced, sync negative
Audio outputs	LINE OUT: phono jacks
	–7.5 dBs at load impedance 47 kΩ
	Output impedance : less than 10 Ω

2-1-6. Adjusting Sequence

Make the electrical adjustment in the following sequence.



2-2. POWER SUPPLY ADJUSTMENTS

2-2-1. Power Supply Check (HS-921SF/921SF1 BOARD, SR-708/718 BOARD)

Mode	E-E
Measuring Instrument	Digital voltmeter
–10 V check	
Measurement Point	Pin ⑨ of CN201
Specified Value	–9.5 ±0.8 V
+6 V check	
Measurement Point	Pin ⑦, ⑧ of CN201
Specified Value	5.9 ± 0.2 V
+13 V check	
Measurement Point	Pin ②, ③ of CN201
Specified Value	13.8 ± 1.2 V
+35 V check	
Measurement Point	Pin ① of CN201
Specified Value	35.0 ± 3.0 V

Checking Method:

1) Confirm that each voltage meets its specified value.

2-2-2. +6 V Adjustment (HS-921SF/921SF1 BOARD, SR-708/718 BOARD)

Mode	REC or PB
Measuring Instrument	Digital voltmeter
Measurement Point	Pin ⑦, ⑧ of CN201
Adjusting Element	RV201 (HS-921SF/921SF1 BOARD) VR201 (SR-708/718 BOARD)
Specified Value	5.9 ± 0.2 V

2-3. SERVO SYSTEM ADJUSTMENT

2-3-1. RF Switching Position Adjustment (MA-350 BOARD)

Purpose:

Adjust the interval between A ch and B ch of tape playback output.
Improve the interchangeability with other tapes and sets.
When it is out of order, the interval appears on the screen, the screen is disturbed.

Mode	PB
Signal	Alignment tape SP mode color bar
Measurement Point	CH1: Pin ② of CN203 CH2: Pin ③ of CN203 (RF SWP)
Measuring Instrument	Oscilloscope
Specified Value	6.5 ± 0.5 H (416 ± 32 µsec) PAL 6.5 ± 0.5 H (410 ± 32 µsec) NTSC

Adjusting Method:

1) Connect MA-350 board JS450 to the GND for about 1 second to activate the RF switching position adjustment mode.
2) Check appear "A P" on FL display.
3) Using the channel + and – buttons, adjust to 6.5 ± 0.5 H.
4) Press the pause button.

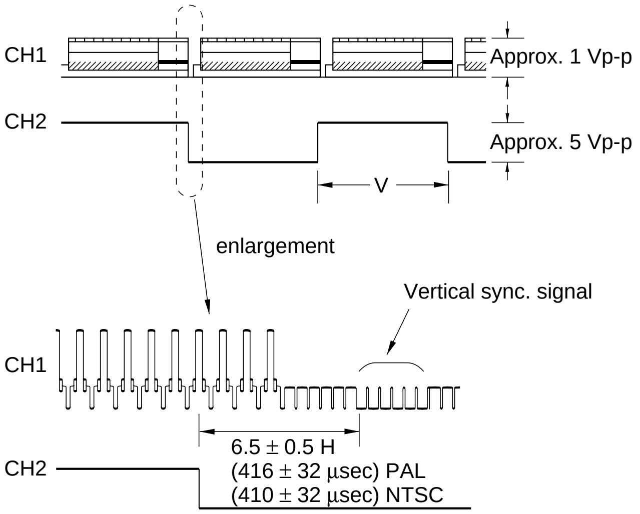


Fig. 7-2-3.

2-4. AUDIO SYSTEM ADJUSTMENTS

- Adjust both Lch and Rch.

[Connection]

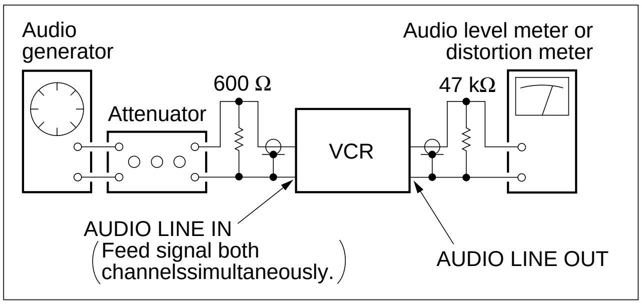


Fig. 7-2-4.

2-4-1. Hi-Fi Audio System Adjustment (SLV-ED60/ED70/EZ60/EZ70)

- Set switches and knobs to the following positions to make adjustment unless otherwise specified.
  INPUT SELECT switch .... LINE
  AUDIO MONITOR .... STEREO

[Adjustment Sequence]

1. **AF Switching Position Adjustment**
2. **Frequency Response Check**
3. **Overall Level Characteristic and Distortion Factor Check**
4. **Overall S/N Check**

1. AF Switching Position Adjustment (MA-350 BOARD)

Purpose:
Adjust the interval between A CH and B CH of tape playback output. Improve the interchangeability with other tapes and sets. When it is out of order, noisy sound is increased and big noise is heard.

Mode	PB
Signal	Alignment tape SP mode color bar
Measurement point	CH1: Pin ③ of CN203 CH2: Pin ① of CN203
Measuring Instrument	Oscilloscope
Specified Value	Fig. 7-2-5

Adjusting Method:

1) Connect MA-350 board JS450 to the GND for about 1 second to activate the RF switching position adjustment mode.
2) Press the record button to activate the AF switching position adjustment mode.
3) Check appear “A H” on FL display.
4) Using the channels + and – buttons, minimize a chipped portion. At this time, confirm that a noisy sound is not heard.
5) Press the pause button.

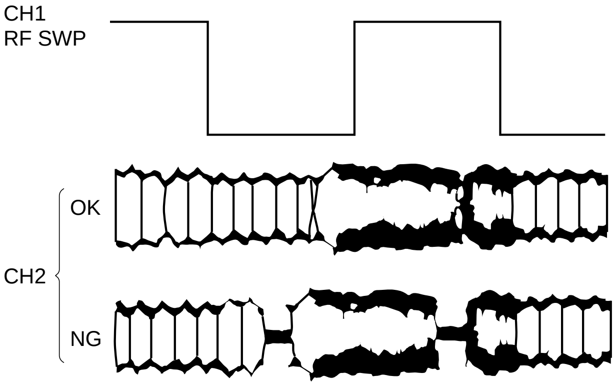


Fig. 7-2-5.

2. Frequency Response Check

Purpose:
Confirm that the frequency characteristic is within the specification.

Mode	REC and PB (SP, LP mode)
Signal	400 Hz, –7.5 dBs 20 Hz, –7.5 dBs 20 kHz, –7.5 dBs
Measurement point	Audio output terminal
Measurement equipment	Audio level meter
Specified value	0 ± 2 dB

Note: Tape path adjustment must have been completed.

Confirmation Method:

1) Supply a signal of 400 Hz, –7.5 dBs to both L and R channels of Audio Line Input.
2) Connect the audio level meter to the Audio Line Output.
3) Adjust the attenuator so that the audio level meter will indicate –7.5 dBs.
4) Make recording.
5) Set an audio line input signal to 20 Hz and make recording.
6) Set an audio line input signal to 20 kHz and make recording.
7) Playback a recorded portion, and measure output levels at 400 Hz and 20 Hz and 20 kHz.
8) Confirm that the 20 Hz and 20 kHz playback output level within a range of the 400 Hz playback output level 0 ± 2 dB.

3. Overall Level Characteristic and Distortion Factor Check

Purpose:
Check the record level, play level, and distortion factor against the reference input.

Mode	REC and PB (SP mode)
Signal	400 Hz, –7.5 dBs
Measurement point	Audio output terminal
Measurement equipment	Audio level meter and distortion factor meter
Specified value	Playback level: –7.5 ± 2.0 dBs Distortion factor: 1% or less

Confirmation Method:
1) Supply an audio signal of 400 Hz, –7.5 dBs simultaneously to both L and R channels of Audio Line Input.
2) Make recording
3) Play back a recorded portion.
4) Confirm that a playback level is –7.5 ±2.0 dBs.
5) Confirm that a distortion factor is within 1%.

4. Overall S/N Check

Purpose:
Confirm that the S/N is within the specification.

Mode	REC and PB (SP mode)
Signal	Short
Measurement point	Audio output terminal
Measurement equipment	Audio noise meter
Specified value	–67.5 dBs or less

Confirmation Method:
1) Connect both L and R channels of audio line input to the GND.
2) Start recording.
3) Play the recorded part to confirm that the noise is below –67.5 dBs.

2-4-2. Normal Audio System Adjustment

- Make adjustment in the SP mode, unless otherwise specified. Use a normal VHS cassette for an adjustment tape.
- Set AUDIO MONITOR to normal.

[Adjustment Sequence]
1. **ACE Head Adjustment**
2. **E-E Output Level Check**
3. **Frequency Response Check**
4. **Overall Level Characteristic and Distortion Factor Check**
5. **Overall S/N Check**

1. ACE Head Adjustment

Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT VI.

2. E-E Output Level Check (SLV-ED10/ED40/EZ10/EZ40)

Purpose:
Confirm that the output level against the reference input is within the specification.

Mode	E-E
Signal	L, R: 400 Hz, –7.5 dBs
Measurement point	Audio output terminal
Measurement equipment	Audio level meter
Specified value	–7.5 ± 3.0 dBs

Confirmation Method:
1) Simultaneously input a signal of 400 Hz, –7.5 dBs to both L and R channels of Audio Line Input.
2) Confirm that the audio output level is –7.5 ± 3.0 dBs.
   (This level only can appear with mono models)

3. Frequency Response Check

Purpose:
Confirm that the frequency characteristic is within the specification.

Mode	REC and PB (SP mode)
Signal	400 Hz, –17.5 dBs 7 kHz, –17.5 dBs
Measurement point	Audio output terminal
Measurement equipment	Audio level meter
Specified value	2.5 ± 4.0 dB

Tape path adjustment must have been completed.

Confirmation Method:
1) Supply a signal of 400 Hz, –17.5 dBs to both L and R channels of Audio Line Input.
2) Connect the audio level meter to the Audio Line Output.
3) Adjust the attenuator so that the audio level meter will indicate –17.5 dBs.
4) Make recording in the SP mode.
5) Set an audio line input signal to 7 kHz and make recording.
6) Playback a recorded portion, and measure output levels at 400 Hz and 7 kHz.
7) Confirm that the 7 kHz playback output level within a range of the 400 Hz playback output level 2.5 ± 4.0 dB.

4. Overall Level Characteristic and Distortion Factor Check

Purpose:
Check the record level, play level, and distortion factor against the reference input.

Mode	REC and PB (SP mode)
Signal	400 Hz, –7.5 dBs
Measurement point	Audio output terminal
Measurement equipment	Audio level meter and distortion factor meter
Specified value	Playback level: –7.5 ± 4.0 dBs Distortion factor: 4% or less

Confirmation Method:
1) Supply an audio signal of 400 Hz, –7.5 dBs simultaneously to both L and R channels of Audio Line Input.
2) Make recording
3) Play back a recorded portion.
4) Confirm that a playback level is –7.5 ± 4.0 dBs.
5) Confirm that a distortion factor is within 4%.

5. Overall S/N Check

Purpose:
Confirm that the S/N is within the specification.

Mode	REC and PB (SP mode)
Signal	Short
Measurement point	Audio output terminal
Measurement equipment	Audio noise meter
Specified value	–46.0 dBs or less

Confirmation Method:
1) Connect both L and R channels of audio line input to the GND.
2) Start recording.
3) Play the recorded part to confirm that the noise is below –46.0 dBs.

2-5. TUNER SYSTEM ADJUSTMENT

[Connection]

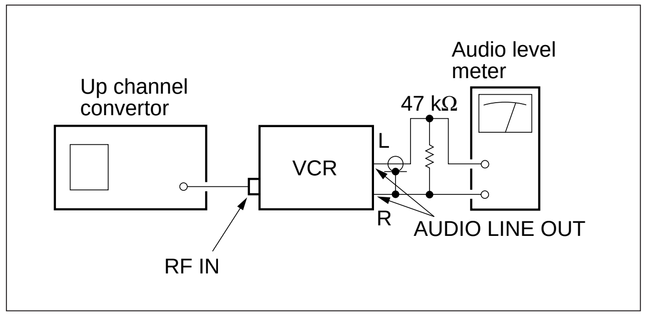


Fig. 7-2-6

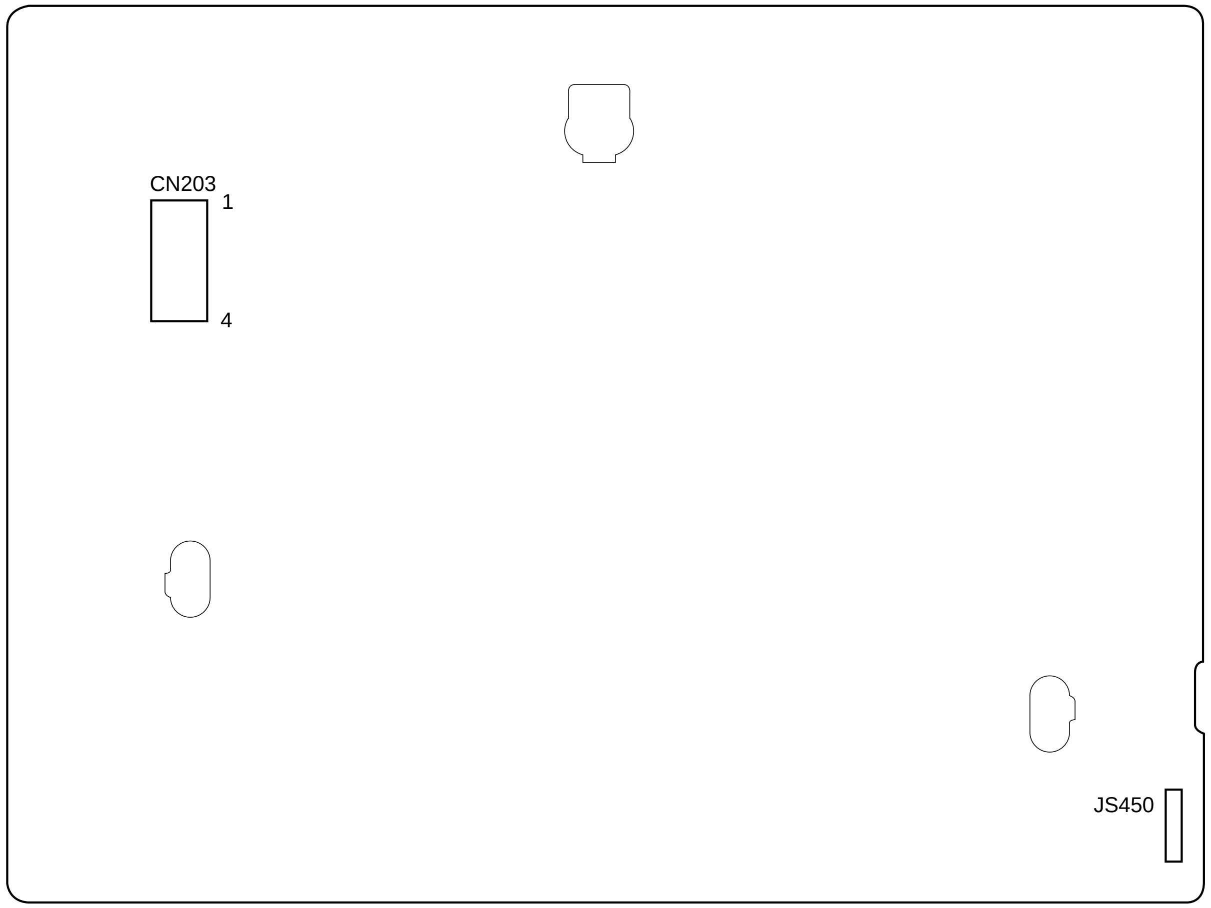
2-5-1. Separation Adjustment (SLV-EZ70:AS)

Purpose:
Mixed audio signal separate Lch and Rch.

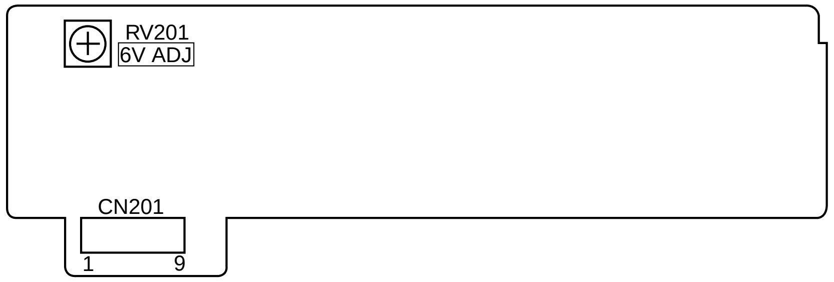
Mode	E-E
Signal	VIDEO: color bar (White 100% modulation) AUDIO: L NONE R 1 kHz 60% modulation ELECTRIC FIELD: 60–80 dBs/75 Ω Term
Measurement point	Audio output terminal
Measurement equipment	Audio level meter
Adjusting Element	RV001
Specified value	minimum

2-6. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS

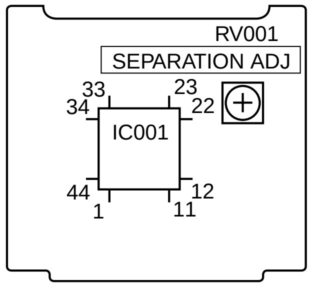
MA-350 BOARD (Side A)



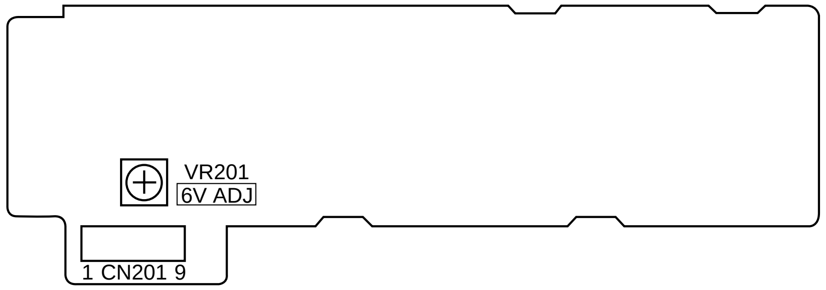
HS-921SF/921SF1 BOARD (Side A)



GK-12 BOARD (Side A)



SR-708/718 BOARD (Side A)



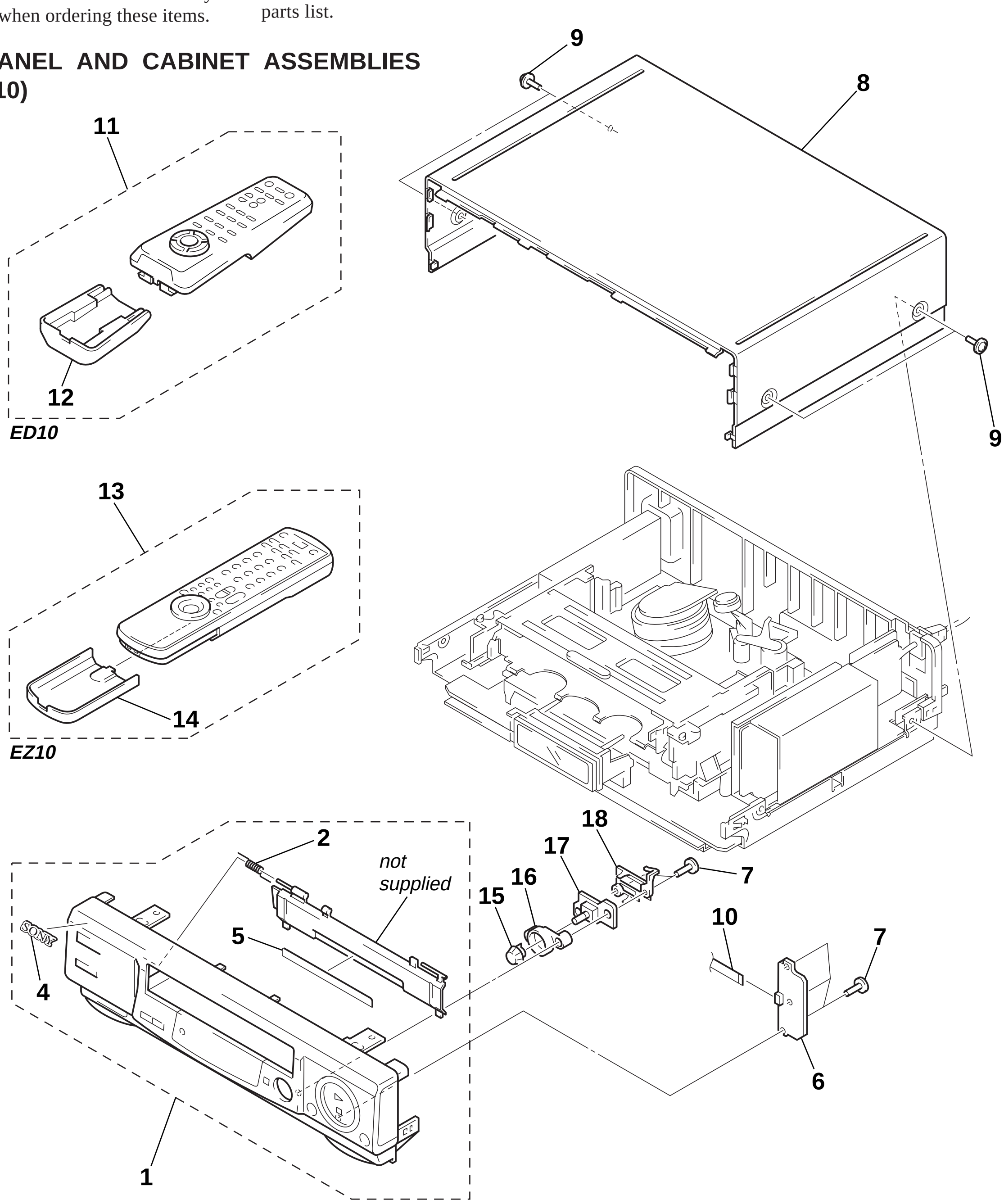
SECTION 8
REPAIR PARTS LIST

8-1. EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

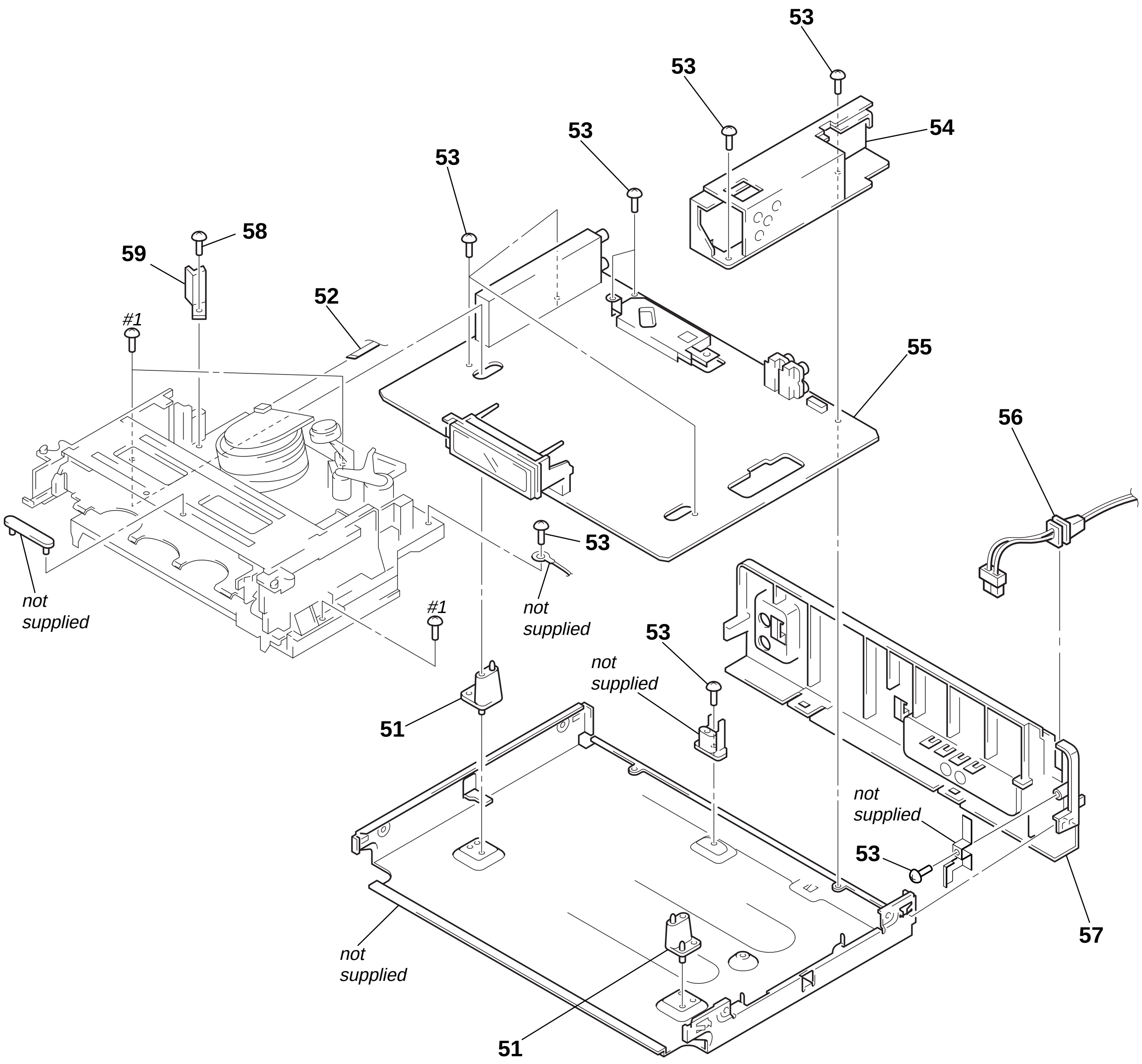
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

8-1-1. FRONT PANEL AND CABINET ASSEMBLIES (ED10/EZ10)



Ref. No.	Part No.	Description	Remark
1	X-3949-480-1	PANEL ASSY, FRONT (ED10:ME,PS,SG)	
1	X-3949-482-1	PANEL ASSY, FRONT (EZ10)	
1	X-3949-550-1	PANEL ASSY, FRONT (ED10: MPS)	
2	3-953-432-01	SPRING (GE), FL	
4	3-943-995-01	EMBLEM (NO.5), SONY (ED10: ME, PS, SG/EZ10)	
4	3-943-995-31	EMBLEM (NO.5), SONY (ED10: MPS)	
5	3-053-240-21	PLATE, DOOR ORNAMENTAL	
* 6	A-6796-662-A	DS-85 BOARD, COMPLETE	
7	4-921-277-41	SCREW (B2.6X8), TAPPING, BIND	
8	3-053-078-41	CASE, UPPER (ED10: ME, PS, SG/EZ10)	
8	3-053-078-31	CASE, UPPER (ED10: MPS)	
9	3-710-901-01	SCREW, TAPPING (ED10: MPS)	
9	3-710-901-11	SCREW, TAPPING (ED10: ME, PS, SG/EZ10)	
10	1-790-537-11	CABLE, FLAT (FFC) (FDS-5)	
11	1-418-160-11	COMMANDER, STANDARD (RMT-V248C) (ED10)	
12	3-709-322-01	COVER, BATTERY (for RMT-V248C) (ED10)	
13	1-475-614-21	COMMANDER, STANDARD (RMT-V245A) (EZ10)	
14	3-709-128-01	COVER, BATTERY (for RMT-V245A) (EZ10)	
15	3-054-386-01	KNOB, ETR	
16	3-054-384-01	ESCUTCHEON, ETR	
* 17	A-6796-661-A	KK-18 BOARD, COMPLETE	
18	3-054-385-01	HOLDER, ETR	

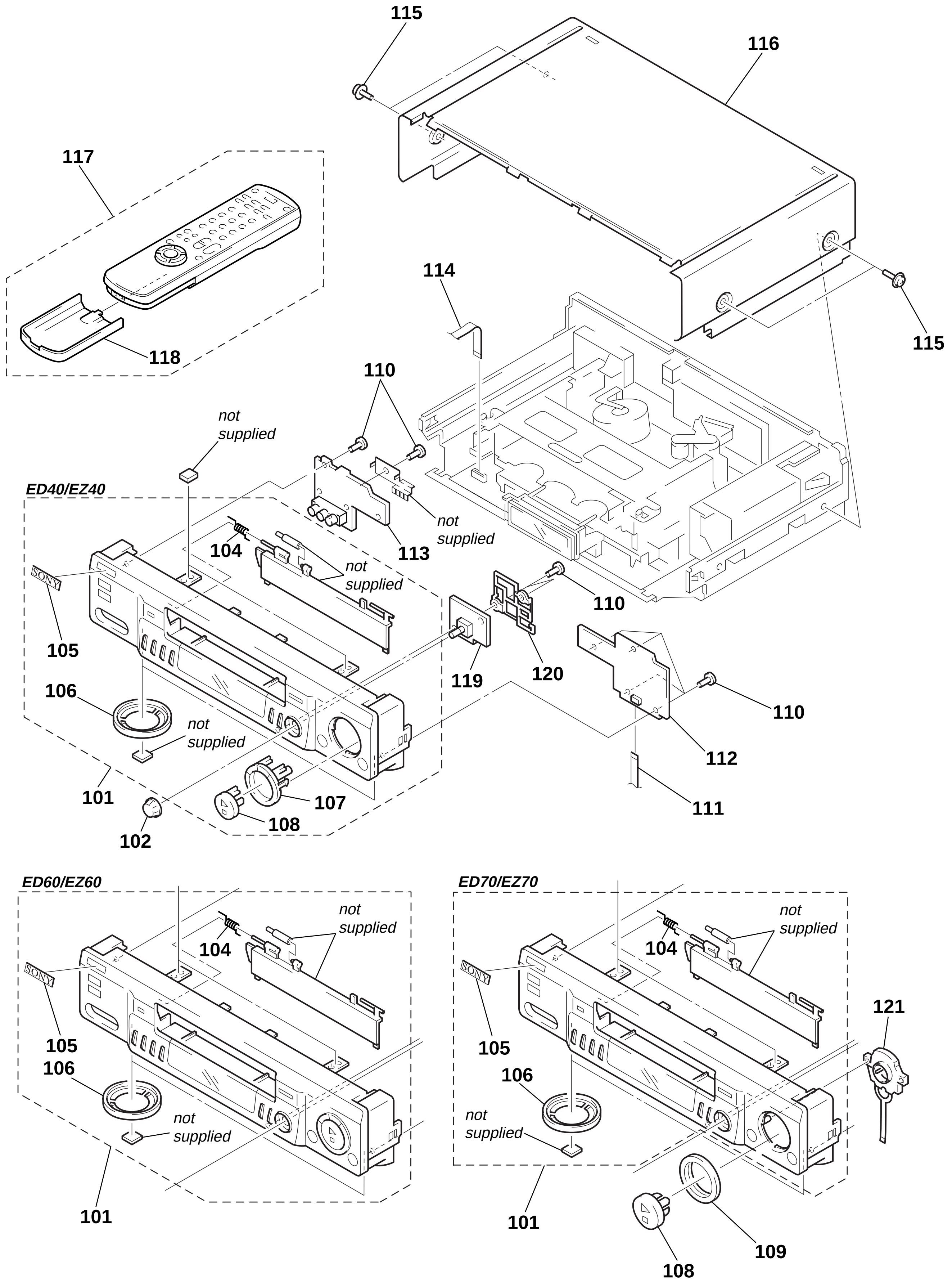
8-1-2. CHASSIS ASSEMBLY (ED10/EZ10)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

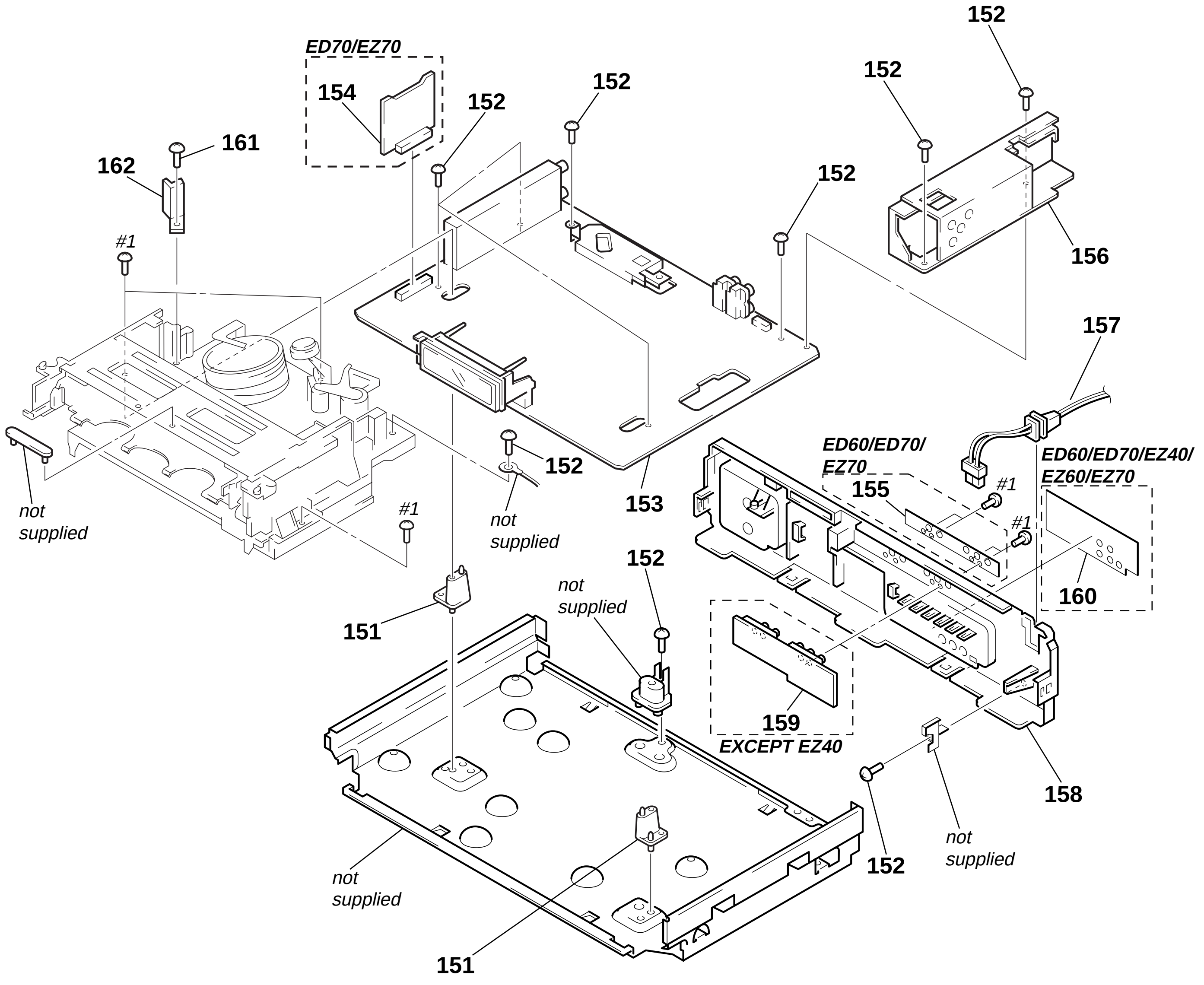
Ref. No.	Part No.	Description	Remark
* 51	3-959-383-02	BASE (R), MD	
52	1-790-536-11	CABLE, FLAT(FFC) (FMD-13)	
53	3-970-608-21	SUMITITE (B3), +BV	
54	1-468-311-11	POWER BLOCK (SR-718) (EZ10)	
54	1-468-312-12	POWER BLOCK (HS-921SF) (ED10)	
* 55	A-6796-660-A	MA-350 BOARD, COMPLETE (ED10: PS, MPS)	
* 55	A-6796-663-A	MA-350 BOARD, COMPLETE (EZ10)	
* 55	A-6796-664-A	MA-350 BOARD, COMPLETE (ED10: ME, SG)	
⚠ 56	1-777-854-21	CORD, POWER (ED10)	
⚠ 56	1-777-855-22	CORD, POWER (EZ10)	
* 57	3-979-652-51	PANEL (M), REAR (EZ10)	
* 57	3-979-652-61	PANEL (M), REAR (ED10)	
58	3-979-112-01	SCREW SW (+) BVTP 3X10	
59	X-3947-568-1	TC (N17S) ASSY	

8-1-3. FRONT PANEL AND CABINET ASSEMBLIES (ED40/ED60/ED70/EZ40/EZ60/EZ70)



Ref. No.	Part No.	Description	Remark
101	X-3949-341-1	PANEL, ASSY FRONT (EZ40)	
101	X-3949-342-1	PANEL, ASSY FRONT (ED40)	
101	X-3949-343-1	PANEL, ASSY FRONT (ED60)	
101	X-3949-344-1	PANEL, ASSY FRONT (EZ60)	
101	X-3949-345-1	PANEL, ASSY FRONT (ED70)	
101	X-3949-346-1	PANEL, ASSY FRONT (EZ70: AS)	
101	X-3949-347-1	PANEL, ASSY FRONT (EZ70: NZ)	
102	3-052-763-01	KNOB, ETR (P5) (EXCEPT ED40/EZ40)	
102	3-052-763-11	KNOB, ETR (P5) (ED40/EZ40)	
104	3-953-432-01	SPRING (GE), FL	
105	3-943-995-01	EMBLEM (NO.5), SONY (ED40/EZ40)	
105	3-943-995-31	EMBLEM (NO.5), SONY (EXCEPT ED40/EZ40)	
* 106	3-977-160-01	INSULATOR	
107	3-987-816-01	RING, BUTTON (ED40/EZ40)	
108	3-972-518-11	BUTTON, CENTER (ED40/EZ40)	
108	3-979-309-61	BUTTON (AV), CENTER (ED70/EZ70)	
109	3-988-327-21	RING (M), JOG (ED70/EZ70)	
110	4-921-277-41	SCREW (B2.6X8), TAPPING, BIND	
111	1-790-533-11	CABLE, FLAT (FFC) (FDM-6)	
* 112	A-6791-859-A	DM-85 BOARD, COMPLETE (EXCEPT ED70/EZ70)	
* 112	A-6791-873-A	DM-85 BOARD, COMPLETE (ED70/EZ70)	
* 113	A-6791-860-A	MF-317 BOARD, COMPLETE (ED60)	
* 113	A-6791-865-A	MF-317 BOARD, COMPLETE (EZ40/EZ60)	
* 113	A-6791-868-A	MF-317 BOARD, COMPLETE (ED40)	
* 113	A-6791-874-A	MF-317 BOARD, COMPLETE (ED70)	
* 113	A-6791-877-A	MF-317 BOARD, COMPLETE (EZ70)	
114	1-790-534-11	CABLE, FLAT (FFC) (FMF-36) (ED60/EZ40/EZ60)	
114	1-790-535-11	CABLE, FLAT (FFC) (FMF-33) (ED40/ED70/EZ70)	
115	3-710-901-01	SCREW, TAPPING (EXCEPT ED40/EZ40)	
115	3-710-901-11	SCREW, TAPPING (ED40/EZ40)	
116	3-979-313-61	CASE, UPPER (EXCEPT ED40/EZ40)	
116	3-979-313-81	CASE, UPPER (ED40/EZ40)	
117	1-418-159-11	COMMANDER, STANDARD (RMT-V245C) (EZ60)	
117	1-418-161-11	COMMANDER, STANDARD (RMT-V247C) (ED60)	
117	1-418-161-21	COMMANDER, STANDARD (RMT-V247D) (ED70)	
117	1-475-614-11	COMMANDER, STANDARD (RMT-V245) (EZ70)	
117	1-475-614-21	COMMANDER, STANDARD (RMT-V245A) (EZ40)	
117	1-475-616-11	COMMANDER, STANDARD (RMT-V247) (ED40)	
118	3-709-128-01	COVER, BATTERY (for RMT-V245/V245A/V245C) (EZ40/EZ60/EZ70)	
118	3-709-133-11	COVER, BATTERY (for RMT-V247/V245C/V247D) (ED40/ED60/ED70)	
* 119	A-6791-861-A	KK-19 BOARD, COMPLETE	
120	3-052-765-01	HOLDER, ETR (P5)	
121	1-762-844-21	SWITCH, ROTARY (ED70/EZ70)	

8-1-4. CHASSIS ASSEMBLY (ED40/ED60/ED70/EZ40/EZ60/EZ70)

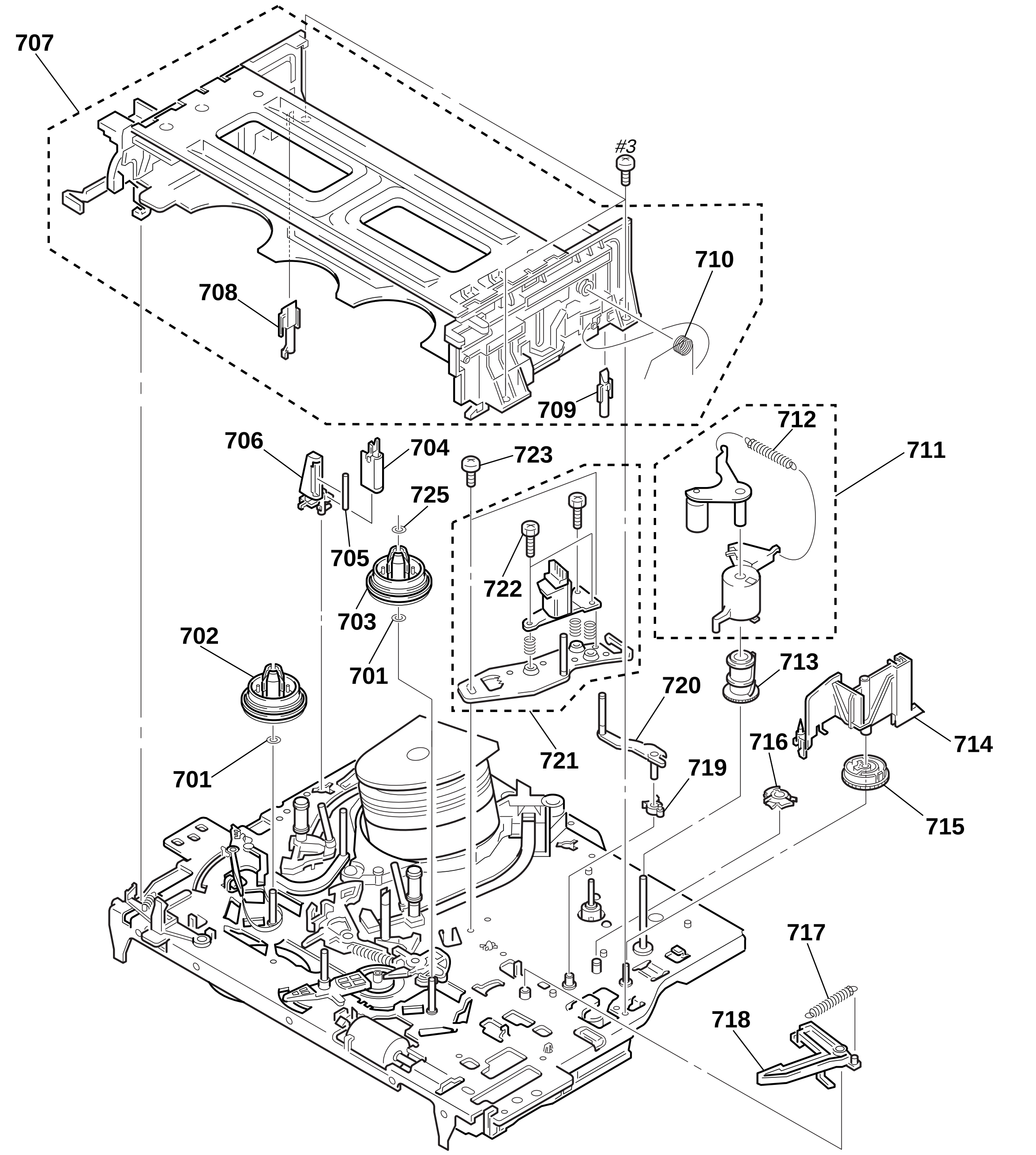


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 151	3-959-383-02	BASE (R), MD	
152	3-970-608-21	SUMITITE (B3), +BV	
* 153	A-6791-857-A	MA-350 BOARD, COMPLETE (ED60: PS)	
* 153	A-6791-862-A	MA-350 BOARD, COMPLETE (ED60: ME, SG)	
* 153	A-6791-863-A	MA-350 BOARD, COMPLETE (EZ60)	
* 153	A-6791-866-A	MA-350 BOARD, COMPLETE (ED40: PS)	
* 153	A-6791-869-A	MA-350 BOARD, COMPLETE (ED40: ME, SG)	
* 153	A-6791-870-A	MA-350 BOARD, COMPLETE (EZ40)	
* 153	A-6791-872-A	MA-350 BOARD, COMPLETE (ED70)	
* 153	A-6791-875-A	MA-350 BOARD, COMPLETE (EZ70: AS)	
* 153	A-6791-878-A	MA-350 BOARD, COMPLETE (EZ70: NZ)	
* 154	A-6791-591-A	NK-11 BOARD, COMPLETE (ED70/EZ70: NZ)	
* 154	A-6791-880-A	GK-12 BOARD, COMPLETE (EZ70: AS)	
155	3-987-913-42	PLATE, REAR JACK B (ED60/ED70/EZ70: AS)	
155	3-987-913-62	PLATE, REAR JACK B (EZ70: NZ)	
156	1-468-311-21	POWER BLOCK (SR-708) (EZ40/EZ60/EZ70)	

Ref. No.	Part No.	Description	Remark
156	1-468-312-22	POWER BLOCK (HS-921SF1) (ED40/ED60/ED70)	
⚠157	1-777-854-21	CORD, POWER (ED40/ED60/ED70)	
⚠157	1-777-855-22	CORD, POWER (EZ40/EZ60/EZ70)	
* 158	3-977-139-51	PANEL, REAR (EXCEPT EZ40)	
* 158	3-977-139-61	PANEL, REAR (EZ40)	
* 159	A-6791-858-A	RJ-82 BOARD, COMPLETE (ED60/ED70)	
* 159	A-6791-864-A	RJ-82 BOARD, COMPLETE (EZ60)	
* 159	A-6791-867-A	RJ-82 BOARD, COMPLETE (ED40)	
* 159	A-6791-876-A	RJ-82 BOARD, COMPLETE (EZ70: AS)	
* 159	A-6791-879-A	RJ-82 BOARD, COMPLETE (EZ70: NZ)	
160	3-987-912-61	PLATE, REAR JACK A (ED60/ED70/EZ70)	
160	3-987-912-31	PLATE, REAR JACK A (EZ40)	
160	3-987-912-71	PLATE, REAR JACK A (EZ60)	
161	3-979-112-01	SCREW SW (+) BVTP 3X10	
162	X-3947-568-1	TC (N17S) ASSY	

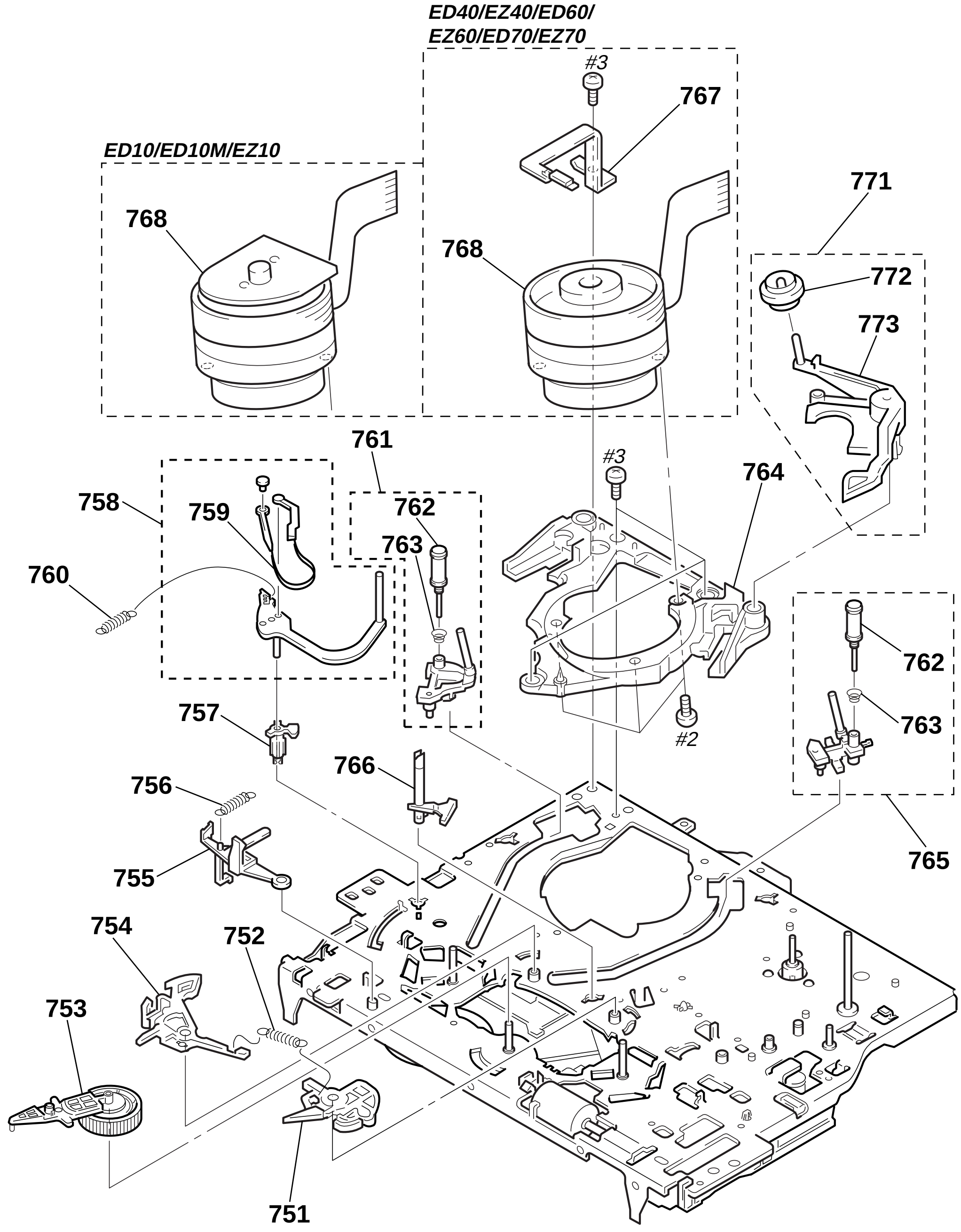
8-1-5. MECHANISM CHASSIS ASSEMBLY (1)



Ref. No.	Part No.	Description	Remark
701	3-977-509-01	WASHER, THRUST	
702	3-977-507-01	TABLE, REEL (S)	
703	3-977-508-01	TABLE, REEL (T)	
704	1-500-144-11	HEAD, FE	
705	3-977-495-01	SHAFT TG2	
706	3-977-494-01	HOLDER, FEH	
707	A-6759-619-B	FL COMPLETE ASSY	
708	3-977-535-01	PLATE, LUMINOUS (END SENSOR)	
709	3-977-536-01	PLATE, LUMINOUS (TOP SENSOR)	
710	3-970-471-01	SPRING (DECK OPEN), TORSION	
711	A-6759-615-A	PRESS BLOCK ASSY, PINCH	
712	3-958-455-01	SPRING (PINCH), TENSION	

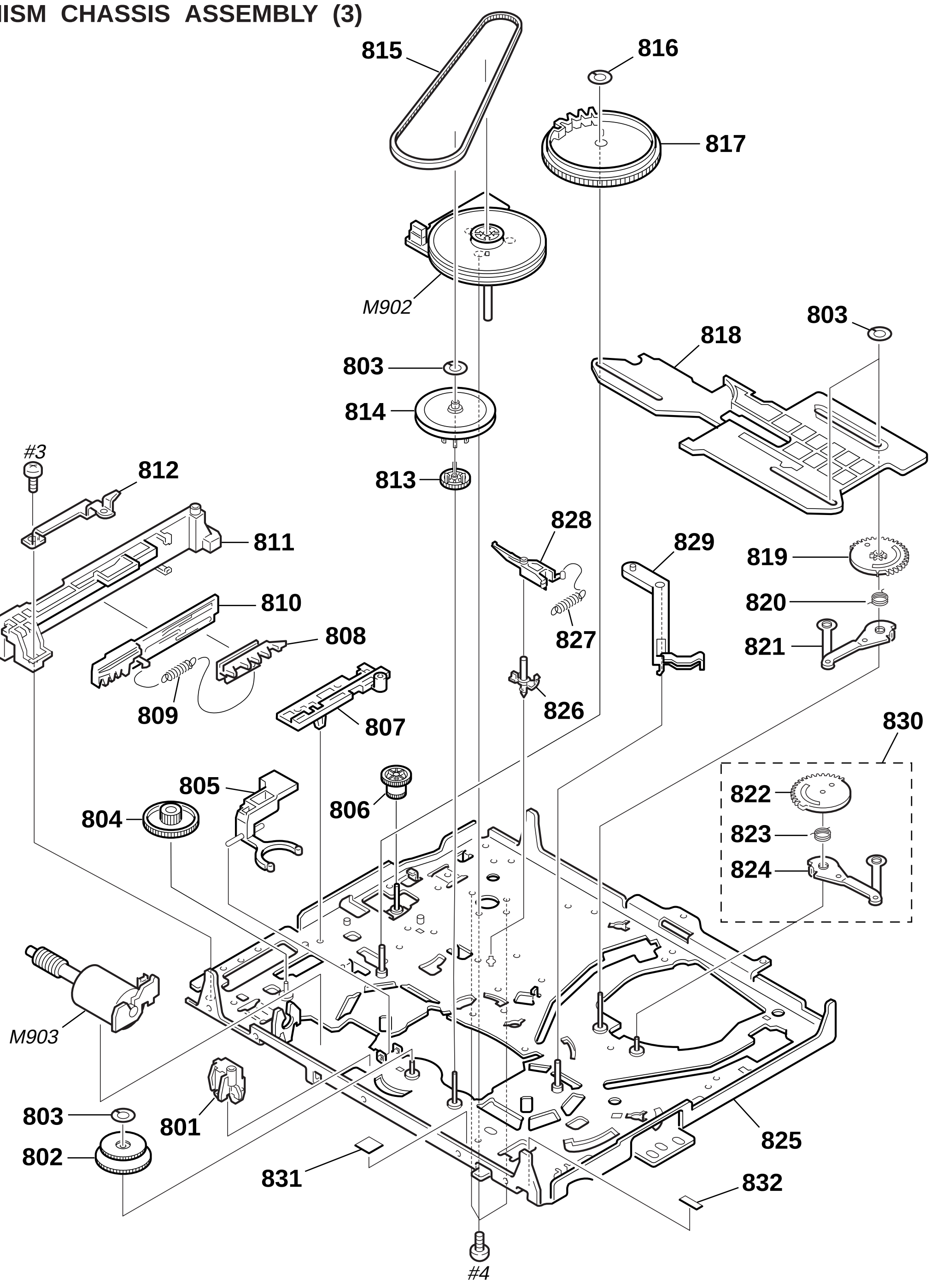
Ref. No.	Part No.	Description	Remark
713	3-977-447-01	GEAR, ELEVATOR	
714	3-977-514-01	OPENER, LID	
715	3-977-441-01	GEAR, PINCH PRESSING	
716	3-977-445-01	GEAR, TG8 ARM DRIVING	
717	3-977-465-01	SPRING, EXTENSION (RVS BRAKE)	
718	X-3947-582-1	ARM ASSY, RVS BRAKE	
719	3-977-446-01	GEAR, TG8 ARM	
720	X-3947-590-1	TG8 ASSY	
721	A-6759-620-A	HEAD BLOCK ASSY, ACE (TDK)	
722	3-974-556-01	+ HEXA TT 2.6X9 (TAPER)	
723	3-979-508-01	SCREW +HEXA TP SW 3X8	
725	3-977-443-01	WASHER, STOPPER	

8-1-6. MECHANISM CHASSIS ASSEMBLY (2)



Ref. No.	Part No.	Description	Remark
751	X-3947-581-1	BRAKE ASSY, MAIN (T)	
752	3-977-462-01	SPRING, EXTENTION. (MAIN BRAKE)	
753	X-3947-573-1	ARM ASSY, PENDULUM	
754	X-3947-580-2	BRAKE ASSY, MAIN (S)	
755	3-977-513-02	LEVER, REC. PROOF	
756	3-976-767-01	SPRING, TENS. (REC. PROOF)	
757	3-977-487-01	BOSS, TG1 FULCRUM	
758	X-3947-587-1	TG1 ASSY	
759	X-3947-589-1	BAND ASSY, TG1	
760	3-977-488-01	SPRING (POWER TENSION)	
761	A-6750-324-A	SHUTTLE (S) BLOCK ASSY	
762	X-3944-378-1	ROLLER ASSY, GUIDE	
763	3-965-178-01	SPRING	
764	3-969-632-04	BASE, DRUM	
765	A-6750-328-E	SHUTTLE (T) BLOCK ASSY	
766	3-977-501-01	PLATE, LUMINOUS	
767	X-3943-899-8	GROUND ASSY, SHAFT (EXCEPT ED10/EZ10)	
768	1-759-453-11	DRUM ASSY DZH-89A-R (ED10/EZ10)	
768	8-839-037-04	DRUM ASSY DZH-74E/Z-RP (ED40/EZ40)	
768	8-839-045-02	DRUM ASSY DZH-95A/Z-RP (ED60/ED70/EZ60/EZ70)	
771	A-6746-074-G	ROLLER BLOCK ASSY, HC	
772	X-3947-255-1	ROLLER ASSY, HC	
773	3-975-724-07	ARM, HC	

8-1-7. MECHANISM CHASSIS ASSEMBLY (3)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
801	3-977-437-01	RETAINER, CAM MOTOR		818	3-977-442-01	SLIDER	
802	X-3947-584-1	ASSY, REEL DIRECT		819	3-977-455-01	GEAR, LOADING (T)	
803	3-977-443-01	WASHER, STOPPER		820	3-977-456-03	SPRING, TORSION (LOAD T)	
804	3-977-438-01	WORM - WHEEL		821	X-3947-579-1	LEVER ASSY, LOADING (T)	
805	3-977-506-01	ARM, LIMITTER SELECTION		822	3-977-451-01	GEAR, LOADING (S)	
806	3-977-444-01	GEAR, PINCH TRANSMISSION		823	3-977-452-01	SPRING, TORSION (LOAD S)	
807	3-977-515-01	GUIDE, FL SLIDER		824	X-3947-578-1	LEVER ASSY, LOADING (S)	
808	3-977-517-01	PLATE, SLIDE, FL		825	X-3947-576-2	CHASSIS ASSY, MECHANICAL	
809	3-977-519-01	SPRING, TENS. (LIMIT, FL)		826	3-977-468-01	SHAFT, CAPSTAN BRAKE	
810	3-977-518-02	PLATE, LIMITTER, FL		827	3-977-467-02	SPRING, CAP BRAKE	
811	3-977-516-01	HOLDER, FL SLIDER		828	X-3947-583-1	BRAKE ASSY, CAPSTAN	
812	3-977-877-01	PLATE, RETAINER		829	3-977-489-01	ARM, TG1 DRIVING	
813	3-977-504-01	GEAR, CLUTCH		830	A-6759-616-A	GEAR BLOCK ASSY, LOADING (S)	
814	X-3947-585-1	GEAR ASSY, PULLEY		831	3-989-917-01	SPACER (REC PROOF)	
815	3-977-510-01	BELT, RUBBER		832	3-052-730-01	SPACER (REC PROOF) (W4.5)	
816	3-977-440-01	WASHER, STOPPER		M902	1-698-971-11	MOTOR, DC (CAPSTAN)	
817	3-977-439-01	GEAR, CAM		M903	X-3947-577-1	MOTOR ASSY, CAM	

8-2. ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked “*” are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . uPA. . : μPA. .
  uPB. . : μPB. . uPC. . : μPC. .
  uPD. . : μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH
- Not all of the parts for POWER BLOCK HS-921SF/921SF1, SR-708/718 are listed.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
*	A-6791-859-A	DM-85 BOARD, COMPLETE (ED40/ED60/EZ40/EZ60)	
*	A-6791-873-A	DM-85 BOARD, COMPLETE (ED70/EZ70)	
		*********************	
		(Ref.No.2,000 Series)	
		< CONNECTOR >	
* CN441	1-750-737-11	CONNECTOR, FFC/FPC 5P (ED70/EZ70)	
CN442	1-784-449-11	CONNECTOR, FFC/FPC 7P	
		< JUMPER RESISTOR >	
JR401	1-216-296-00	METAL CHIP 0 5%	1/8W
		< RESISTOR >	
R442	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R443	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R444	1-216-295-00	METAL CHIP 0 5%	1/10W
R445	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R446	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R447	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
		< SWITCH >	
S441	1-762-196-21	SWITCH, TACT (⏏ EJECT)	
S442	1-762-196-21	SWITCH, TACT (◀◀ REW)(ED70/EZ70)	
S443	1-762-196-21	SWITCH, TACT (▶▶ FF)(ED70/EZ70)	
S444	1-762-196-21	SWITCH, TACT (❚❚ PAUSE)	
S445	1-762-196-21	SWITCH, TACT (● REC)	
S447	1-762-196-21	SWITCH, TACT (◀◀ REW) (ED40/ED60/EZ40/EZ60)	
S448	1-762-196-21	SWITCH, TACT (▶▶ FF) (ED40/ED60/EZ40/EZ60)	
S449	1-762-196-21	SWITCH, TACT (■ STOP) (ED40/ED60/EZ40/EZ60)	
S450	1-762-196-21	SWITCH, TACT (▷ PLAY) (ED40/ED60/EZ40/EZ60)	

Ref. No.	Part No.	Description	Remark
*	A-6796-662-A	DS-85 BOARD, COMPLETE (ED10/EZ10)	
		*********************	
		(Ref.No.1,000 Series)	
		< CONNECTOR >	
* CN502	1-750-737-11	CONNECTOR, FFC/FPC 5P	
		< RESISTOR >	
R501	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R502	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R503	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
		< SWITCH >	
S501	1-762-196-21	SWITCH, TACT (▶▶ FF)	
S502	1-762-196-21	SWITCH, TACT (▷ PLAY)	
S503	1-762-196-21	SWITCH, TACT (■ STOP)	
S504	1-762-196-21	SWITCH, TACT (◀◀ REW)	

Ref. No.	Part No.	Description	Remark
*	A-6791-880-A	GK-12 BOARD, COMPLETE (EZ70: AS)	
		*********************	
		(Ref.No.1,000 Series)	
		< CAPACITOR >	
C003	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C006	1-163-137-00	CERAMIC CHIP 680PF 5%	50V
C007	1-164-699-11	CERAMIC CHIP 0.0033uF 5%	50V
C008	1-164-699-11	CERAMIC CHIP 0.0033uF 5%	50V
C009	1-163-137-00	CERAMIC CHIP 680PF 5%	50V
C010	1-163-243-11	CERAMIC CHIP 47PF 5%	50V
C011	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C012	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C013	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C014	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C015	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C016	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C017	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C018	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C021	1-113-642-11	TANTAL. CHIP 47uF 10%	10V
C022	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C023	1-164-232-11	CERAMIC CHIP 0.01uF	50V
		< CONNECTOR >	
* CN001	1-691-183-11	CONNECTOR (BOARD TO BOARD) 13P	
		< IC >	
IC001	8-759-579-30	IC TDA9873H/V2,518	

Ref. No.	Part No.	Description			Remark
		< JUMPER RESISTOR >			
JS002	1-216-295-00	METAL CHIP	0	5%	1/10W
JS003	1-216-295-00	METAL CHIP	0	5%	1/10W
		< RESISTOR >			
R001	1-216-295-00	METAL CHIP	0	5%	1/10W
R002	1-216-295-00	METAL CHIP	0	5%	1/10W
R004	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R005	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R006	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R007	1-216-045-00	METAL CHIP	680	5%	1/10W
R008	1-216-041-00	METAL CHIP	470	5%	1/10W
R009	1-216-041-00	METAL CHIP	470	5%	1/10W
R010	1-208-803-11	RES, CHIP	7.5K	0.50%	1/10W
R011	1-216-295-00	METAL CHIP	0	5%	1/10W
R012	1-216-298-00	METAL CHIP	2.2	5%	1/10W
		< VARIABLE RESISTOR >			
RV001	1-241-783-11	RES, ADJ, CARBON 2.2K			
		< VIBRATOR >			
X001	1-781-353-11	VIBRATOR, CRYSTAL (4MHz)			

Ref. No.	Part No.	Description			Remark
*	A-6796-661-A	KK-18 BOARD, COMPLETE (ED10/EZ10)			
		**********************			
		(Ref.No.1,000 Series)			
		< CONNECTOR >			
* CN511	1-568-942-11	PIN, CONNECTOR 4P			
		< JUMPER RESISTOR >			
JR511	1-216-296-00	METAL CHIP	0	5%	1/8W
		< SWITCH >			
S511	1-418-059-11	ENCODER, ROTARY (EASY TIMER)			

Ref. No.	Part No.	Description			Remark
*	A-6791-861-A	KK-19 BOARD, COMPLETE (ED40/ED60/ED70/EZ40/EZ60/EZ70)			
		**********************			
		(Ref.No.2,000 Series)			
		< CONNECTOR >			
* CN511	1-568-942-11	PIN, CONNECTOR 4P			
		< JUMPER RESISTOR >			
JR511	1-216-296-00	METAL CHIP	0	5%	1/8W
		< SWITCH >			
S511	1-418-059-11	ENCODER, ROTARY (EASY TIMER) (ED40/ED60/ED70/EZ40)			
S511	1-418-059-22	ENCODER, ROTARY (EASY TIMER) (EZ60/EZ70)			

Ref. No.	Part No.	Description			Remark
*	A-6791-857-A	MA-350 BOARD, COMPLETE (ED60: PS)			
*	A-6791-862-A	MA-350 BOARD, COMPLETE (ED60: ME, SG)			
*	A-6791-863-A	MA-350 BOARD, COMPLETE (EZ60)			
*	A-6791-866-A	MA-350 BOARD, COMPLETE (ED40: PS)			
*	A-6791-869-A	MA-350 BOARD, COMPLETE (ED40: ME, SG)			
*	A-6791-870-A	MA-350 BOARD, COMPLETE (EZ40)			
*	A-6791-872-A	MA-350 BOARD, COMPLETE (ED70)			
*	A-6791-875-A	MA-350 BOARD, COMPLETE (EZ70: AS)			
*	A-6791-878-A	MA-350 BOARD, COMPLETE (EZ70: NZ)			
*	A-6796-660-A	MA-350 BOARD, COMPLETE (ED10: MPS, PS)			
*	A-6796-663-A	MA-350 BOARD, COMPLETE (EZ10)			
*	A-6796-664-A	MA-350 BOARD, COMPLETE (ED10: ME, SG)			
		**********************			
		(Ref.No.1,000 Series)			
*	3-960-273-01	SPACER, TOP END			
*	3-960-274-01	SPACER, LED			
*	3-966-865-01	BASE, INDICATION TUBE			
		< CAPACITOR >			
C100	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C101	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C102	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C103	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C104	1-128-057-11	ELECT	330uF	20%	6.3V
C110	1-124-589-11	ELECT	47uF	20%	16V
C111	1-124-589-11	ELECT	47uF	20%	16V (ED10/EZ10)
C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C113	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C114	1-124-589-11	ELECT	47uF	20%	16V (ED10/EZ10)
C114	1-126-767-11	ELECT	1000uF	20%	16V (ED40/ED60/ED70/EZ40/EZ60/EZ70)
C115	1-124-589-11	ELECT	47uF	20%	16V
C116	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C117	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C118	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C119	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C120	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C131	1-128-499-11	ELECT	220uF	20%	16V
C132	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C133	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C161	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C162	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C163	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C164	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C165	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C166	1-104-905-11	CAPACITOR	0.22F		5.5V (ED10: MPS, PS/ED40: PS/ED60: PS/ED70/EZ10/EZ40/EZ60/EZ70)
C167	1-126-925-11	ELECT	470uF	20%	10V
C168	1-127-890-11	DOUBLE LAYER	0.47F		5.5V (ED10: ME, SG/ED40: ME, SG/ED60: ME, SG)
C171	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C172	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C173	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C174	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C175	1-163-234-11	CERAMIC CHIP	20PF	5%	50V
C176	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C177	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C178	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C179	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C191	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C192	1-124-234-00	ELECT	22uF	20%	16V
C193	1-126-157-11	ELECT	10uF	20%	16V

Ref. No.	Part No.	Description				Remark
C194	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
C195	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C196	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	(ED40/ED70/EZ70)
C197	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C201	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C203	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C204	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C205	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C206	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C207	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C208	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V	
C209	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C210	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
C210	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED10/EZ10)
C211	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
C211	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED10/EZ10)
C213	1-126-162-11	ELECT	3.3uF	20%	50V	
C214	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
C215	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
C216	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
C217	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
C219	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C220	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C221	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
C222	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C223	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C224	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C225	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C226	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C227	1-117-720-11	CERAMIC CHIP	4.7uF		10V	
C230	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C231	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C232	1-163-089-00	CERAMIC CHIP	6PF		50V	
C233	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C234	1-117-720-11	CERAMIC CHIP	4.7uF		10V	
C235	1-163-231-11	CERAMIC CHIP	15PF	5%	50V	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
C235	1-163-233-11	CERAMIC CHIP	18PF	5%	50V	(ED10/EZ10)
C236	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C237	1-163-233-11	CERAMIC CHIP	18PF	5%	50V	
C238	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C239	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C241	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C242	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C243	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C244	1-126-157-11	ELECT	10uF	20%	16V	
C245	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C246	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C247	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C248	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C249	1-126-162-11	ELECT	3.3uF	20%	50V	

Ref. No.	Part No.	Description				Remark
C250	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C251	1-126-157-11	ELECT	10uF	20%	16V	
C253	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C254	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	(ED40/ED60/ED70/EZ70)
C255	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C256	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
C259	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C262	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
C264	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C265	1-163-263-11	CERAMIC CHIP	330PF	5%	50V	
C266	1-164-505-11	CERAMIC CHIP	2.2uF		16V	(ED40/ED60/ED70/EZ70: AS)
C267	1-163-239-11	CERAMIC CHIP	33PF	5%	50V	
C269	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
C269	1-163-241-11	CERAMIC CHIP	39PF	5%	50V	(ED10/EZ10)
C270	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
C270	1-163-241-11	CERAMIC CHIP	39PF	5%	50V	(ED10/EZ10)
C274	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED40/ED60/ED70/EZ70: AS)
C275	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED40/ED60/ED70/EZ70: AS)
C301	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C302	1-124-234-00	ELECT	22uF	20%	16V	
C303	1-126-163-11	ELECT	4.7uF	20%	50V	
C304	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C305	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C306	1-126-163-11	ELECT	4.7uF	20%	50V	
C307	1-126-157-11	ELECT	10uF	20%	16V	
C308	1-126-160-11	ELECT	1uF	20%	50V	(ED40)
C309	1-126-160-11	ELECT	1uF	20%	50V	
C310	1-126-160-11	ELECT	1uF	20%	50V	
C311	1-124-234-00	ELECT	22uF	20%	16V	
C312	1-126-163-11	ELECT	4.7uF	20%	50V	
C313	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C314	1-164-505-11	CERAMIC CHIP	2.2uF		16V	(ED40)
C315	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C316	1-163-259-91	CERAMIC CHIP	220PF	5%	50V	
C318	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C319	1-126-160-11	ELECT	1uF	20%	50V	(ED60/ED70/EZ70)
C320	1-126-160-11	ELECT	1uF	20%	50V	(ED40/ED60/ED70/EZ70)
C321	1-126-160-11	ELECT	1uF	20%	50V	(ED40)
C322	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED40)
C323	1-124-589-11	ELECT	47uF	20%	16V	
C330	1-104-697-11	FILM	0.047uF	5%	100V	(ED40/ED70/EZ70)
C331	1-124-589-11	ELECT	47uF	20%	16V	(ED40/ED70/EZ70)
C332	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V	(ED40/ED70/EZ70)
C333	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V	(ED40/ED70/EZ70)

Ref. No.	Part No.	Description				Remark
C334	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED40/ED70/EZ70)
C335	1-104-696-11	FILM	0.015uF	5%	100V	(ED10/ED60/EZ10/EZ40/EZ60)
C335	1-137-612-11	FILM	0.0068uF	5%	100V	(ED40/ED70/EZ70)
C336	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V	
C337	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C338	1-124-589-11	ELECT	47uF	20%	16V	
C339	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C341	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C342	1-126-157-11	ELECT	10uF	20%	16V	
C350	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED60/ED70/EZ60/EZ70)
C351	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED60/ED70/EZ60/EZ70)
C352	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	(ED60/ED70/EZ60/EZ70)
C353	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(ED60/ED70/EZ60/EZ70)
C354	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	(ED60/ED70/EZ60/EZ70)
C355	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	(ED60/ED70/EZ60/EZ70)
C356	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	(ED60/ED70/EZ60/EZ70)
C357	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	(ED60/ED70/EZ60/EZ70)
C358	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	(ED60/ED70/EZ60/EZ70)
C359	1-126-382-11	ELECT	100uF	20%	16V	(ED60/ED70/EZ60/EZ70)
C360	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	(ED60/ED70/EZ60/EZ70)
C361	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	(ED60/ED70/EZ60/EZ70)
C362	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	(ED60/ED70/EZ60/EZ70)
C363	1-104-664-11	ELECT	47uF	20%	16V	(ED60/ED70/EZ60/EZ70)
C369	1-126-964-11	ELECT	10uF	20%	50V	(ED60/ED70/EZ60/EZ70)
C370	1-126-964-11	ELECT	10uF	20%	50V	(ED60/ED70/EZ60/EZ70)
C371	1-126-960-11	ELECT	1uF	20%	50V	(ED60/ED70/EZ60/EZ70)
C372	1-126-964-11	ELECT	10uF	20%	50V	(ED60/ED70/EZ60/EZ70)
C373	1-126-964-11	ELECT	10uF	20%	50V	(ED60/ED70/EZ60/EZ70)
C375	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	(ED60/ED70/EZ60/EZ70)
C376	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V	(ED60/ED70/EZ60/EZ70)
C377	1-104-664-11	ELECT	47uF	20%	16V	(ED60/ED70/EZ60/EZ70)
C378	1-126-964-11	ELECT	10uF	20%	50V	(ED60/ED70/EZ60/EZ70)
C379	1-126-961-11	ELECT	2.2uF	20%	50V	(ED60/ED70/EZ60/EZ70)
C380	1-126-964-11	ELECT	10uF	20%	50V	(ED60/ED70/EZ60/EZ70)
C381	1-104-664-11	ELECT	47uF	20%	16V	(ED60/ED70/EZ60/EZ70)
C382	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V	(ED60/ED70/EZ60/EZ70)
C383	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	(ED60/ED70/EZ60/EZ70)
C384	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(ED60/ED70/EZ60/EZ70)
C385	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	(ED60/ED70/EZ60/EZ70)
C386	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	(ED60/ED70/EZ60/EZ70)
C387	1-126-960-11	ELECT	1uF	20%	50V	(ED60/ED70/EZ60/EZ70)
C400	1-117-720-11	CERAMIC CHIP	4.7uF		10V	
C401	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C402	1-163-229-11	CERAMIC CHIP	12PF	5%	50V	
C403	1-126-163-11	ELECT	4.7uF	20%	50V	
C404	1-126-157-11	ELECT	10uF	20%	16V	
C405	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C406	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C407	1-126-163-11	ELECT	4.7uF	20%	50V	
C408	1-163-241-11	CERAMIC CHIP	39PF	5%	50V	
C409	1-163-241-11	CERAMIC CHIP	39PF	5%	50V	
C411	1-163-229-11	CERAMIC CHIP	12PF	5%	50V	
C412	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V	
C414	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
C415	1-163-245-11	CERAMIC CHIP	56PF	5%	50V	
C421	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C422	1-124-589-11	ELECT	47uF	20%	16V	
C423	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C424	1-126-157-11	ELECT	10uF	20%	16V	
C450	1-164-232-11	CERAMIC CHIP	0.01uF		50V	(ED10/EZ10)
C451	1-124-589-11	ELECT	47uF	20%	16V	
C600	1-126-163-11	ELECT	4.7uF	20%	50V	
C601	1-124-261-00	ELECT	10uF	20%	50V	
C602	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C603	1-126-935-11	ELECT	470uF	20%	16V	
C604	1-124-589-11	ELECT	47uF	20%	16V	
C605	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C607	1-124-589-11	ELECT	47uF	20%	16V	
C608	1-126-933-11	ELECT	100uF	20%	16V	
C609	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C611	1-124-589-11	ELECT	47uF	20%	16V	
C701	1-126-933-11	ELECT	100uF	20%	16V	
C702	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C703	1-104-664-11	ELECT	47uF	20%	16V	
C706	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C707	1-126-163-11	ELECT	4.7uF	20%	50V	
C708	1-126-933-11	ELECT	100uF	20%	16V	
C709	1-126-933-11	ELECT	100uF	20%	16V	
C710	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C711	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C712	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C713	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C714	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C715	1-126-933-11	ELECT	100uF	20%	16V	
C716	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C717	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C718	1-126-933-11	ELECT	100uF	20%	16V	(ED70/EZ70)

	Ref. No.	Part No.	Description	Remark
	C719	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V (ED70/EZ70)
	C720	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V (ED70/EZ70)
	C721	1-164-232-11	CERAMIC CHIP 0.01uF	50V (ED70/EZ70)
	C722	1-124-589-11	ELECT 47uF 20%	16V
	C902	1-126-925-11	ELECT 470uF 20%	10V
	C904	1-104-664-11	ELECT 47uF 20%	16V
	C908	1-126-960-11	ELECT 1uF 20%	50V
	C909	1-126-960-11	ELECT 1uF 20%	50V (ED60/ED70/EZ60/EZ70)
			< CONNECTOR >	
*	CN101	1-568-954-11	PIN, CONNECTOR 5P (ED40/ED60/ED70/EZ40/EZ60/EZ70)	
	CN102	1-779-723-11	CONNECTOR, BOARD TO BOARD 9P	
*	CN103	1-766-716-11	CONNECTOR, BOARD TO BOARD 3P	
	CN104	1-784-486-11	CONNECTOR, FFC/FPC 7P (ED10/EZ10)	
	CN191	1-506-468-11	PIN, CONNECTOR 3P	
	CN201	1-784-492-11	CONNECTOR, FFC/FPC 13P (ED60/ED70/EZ60/EZ70)	
	CN202	1-784-487-11	CONNECTOR, FFC/FPC 8P (ED10/ED40/EZ10/EZ40)	
*	CN203	1-560-892-00	PIN, CONNECTOR 4P	
*	CN204	1-568-954-11	PIN, CONNECTOR 5P (ED40/ED60/ED70/EZ70)	
	CN330	1-506-468-11	PIN, CONNECTOR 3P	
	CN331	1-506-469-11	PIN, CONNECTOR 4P	
	CN450	1-506-469-11	PIN, CONNECTOR 4P	
	CN451	1-784-486-11	CONNECTOR, FFC/FPC 7P (ED40/ED70/EZ70)	
	CN452	1-784-486-11	CONNECTOR, FFC/FPC 7P (ED40/ED60/ED70/EZ40/EZ60/EZ70)	
	CN453	1-784-484-11	CONNECTOR, FFC/FPC 5P (ED10/EZ10)	
	CN454	1-784-484-11	CONNECTOR, FFC/FPC 5P (ED60/EZ40/EZ60)	
*	CN600	1-568-936-11	PIN, CONNECTOR 9P (ED40/ED60/ED70/EZ40/EZ60/EZ70)	
	CN600	1-784-946-11	CONNECTOR, BOARD TO BOARD 9P	(ED10/EZ10)
	CN701	1-691-170-11	PIN, CONNECTOR 13P (ED70/EZ70)	
*	CN702	1-568-954-11	PIN, CONNECTOR 5P (EZ70: NZ)	
*	CN901	1-568-937-11	PIN, CONNECTOR 10P (ED60/ED70/EZ70: AS)	
	CN902	1-568-953-21	PIN, CONNECTOR 4P (ED40)	
	CN903	1-506-469-11	PIN, CONNECTOR 4P (EZ60/EZ70: NZ)	
			< JACK >	
	CNJ901	1-779-011-11	JACK, PIN 6P (LINE-1 IN/LINE-1 OUT)	(ED60/ED70/EZ60/EZ70)
	CNJ902	1-779-012-21	JACK, PIN 5P (LINE-1 IN/LINE OUT) (ED40)	
	CNJ903	1-779-010-11	JACK, PIN 4P (LINE IN/LINE OUT)	(ED10/EZ10/EZ40)
			< DIODE >	
	D102	8-719-048-26	DIODE GL528V1	
	D111	8-719-200-82	DIODE MPG06D-6052PKG3	
	D164	8-719-200-82	DIODE MPG06D-6052PKG3	
	D401	8-719-911-19	DIODE 1SS119-25TD	
	D402	8-719-911-19	DIODE 1SS119-25TD	
	D403	8-719-911-19	DIODE 1SS119-25TD	
	D450	8-719-056-07	DIODE SLR-342MCT31 (ON/STANDBY)	(ED10/EZ10)
	D603	8-719-911-19	DIODE 1SS119-25TD	
	D606	8-719-200-82	DIODE MPG06D-6052PKG3	
	D703	8-719-150-92	DIODE RD33ES-T1B	

Ref. No.	Part No.	Description	Remark
		< ENCAPSULATED COMPONENT >	
FL901	1-236-163-11	ENCAPSULATED COMPONENT	(EZ10/EZ40/EZ60/EZ70)
FL902	1-236-163-11	ENCAPSULATED COMPONENT (EZ60/EZ70)	
		< IC >	
IC130	8-759-481-46	IC LB1943	
IC161	8-759-579-70	IC HD6433977R-GA (ED10/ED40/ED60/ED70)	
IC161	8-759-579-71	IC HD6433977R-AZ (EZ10/EZ40/EZ60)	
IC161	8-759-579-72	IC HD6433977R-AS (EZ70: AS)	
IC161	8-759-579-73	IC HD6433977R-NZ (EZ70: NZ)	
IC162	8-759-580-62	IC MM1256AFBE	
IC163	8-759-575-70	IC M24C02-WMN6T	
IC201	8-759-562-59	IC HA118211BF	
IC202	8-759-295-66	IC BA7653AF-E2 (ED40/ED60/ED70/EZ70: AS)	
IC301	8-759-526-64	IC NJM2521M (TE2) (ED40)	
IC350	8-759-486-92	IC LA7256 (ED60/ED70/EZ60/EZ70)	
IC360	8-759-486-64	IC TDA9615H/N1,557	(ED60/ED70/EZ60/EZ70)
IC420	8-759-566-61	IC uPD16312GB-3BS	
IC450	8-742-042-00	IC SBX1986-51 (ED10/EZ10)	
IC600	8-759-438-18	IC PQ12RD08	
IC601	8-759-701-56	IC NJM78M05FA	
IC602	8-759-471-81	IC PQ05RD11	
		< JUMPER RESISTOR >	
JR001	1-216-295-00	METAL CHIP 0 5%	1/10W
JR002	1-216-295-00	METAL CHIP 0 5%	1/10W (ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR003	1-216-295-00	METAL CHIP 0 5%	1/10W
JR004	1-216-295-00	METAL CHIP 0 5%	1/10W
JR005	1-216-295-00	METAL CHIP 0 5%	1/10W
JR006	1-216-295-00	METAL CHIP 0 5%	1/10W
JR007	1-216-295-00	METAL CHIP 0 5%	1/10W
JR008	1-216-295-00	METAL CHIP 0 5%	1/10W (ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR009	1-216-295-00	METAL CHIP 0 5%	1/10W
JR010	1-216-295-00	METAL CHIP 0 5%	1/10W
JR011	1-216-295-00	METAL CHIP 0 5%	1/10W
JR012	1-216-295-00	METAL CHIP 0 5%	1/10W
JR013	1-216-295-00	METAL CHIP 0 5%	1/10W
JR014	1-216-295-00	METAL CHIP 0 5%	1/10W
JR015	1-216-295-00	METAL CHIP 0 5%	1/10W
JR016	1-216-295-00	METAL CHIP 0 5%	1/10W
JR017	1-216-295-00	METAL CHIP 0 5%	1/10W (ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR018	1-216-295-00	METAL CHIP 0 5%	1/10W
JR019	1-216-295-00	METAL CHIP 0 5%	1/10W
JR020	1-216-295-00	METAL CHIP 0 5%	1/10W
JR021	1-216-295-00	METAL CHIP 0 5%	1/10W
JR022	1-216-295-00	METAL CHIP 0 5%	1/10W
JR023	1-216-295-00	METAL CHIP 0 5%	1/10W
JR024	1-216-295-00	METAL CHIP 0 5%	1/10W
JR025	1-216-295-00	METAL CHIP 0 5%	1/10W
JR201	1-216-296-00	METAL CHIP 0 5%	1/8W
JR202	1-216-296-00	METAL CHIP 0 5%	1/8W (ED60/ED70/EZ60/EZ70)
JR203	1-216-296-00	METAL CHIP 0 5%	1/8W (ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR204	1-216-296-00	METAL CHIP 0 5%	1/8W (ED40/ED60/ED70/EZ40/EZ60/EZ70)

MA-350

Ref. No.	Part No.	Description	Remark
JR205	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70/EZ60/EZ70)
JR206	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70/EZ60/EZ70)
JR207	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70/EZ60/EZ70)
JR209	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR210	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR211	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR212	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR213	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR214	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR215	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR216	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR217	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR218	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR219	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR220	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR221	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR222	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR223	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR224	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR225	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR226	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR227	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR228	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR229	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70/EZ60/EZ70)
JR230	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR231	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR232	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR233	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR234	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR235	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR236	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR237	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR238	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR239	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR240	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR241	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR242	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR243	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR245	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR247	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR248	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR249	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR251	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR252	1-216-296-00	METAL CHIP 0 5% 1/8W	
JS203	1-216-296-00	METAL CHIP 0 5% 1/8W	(EZ70: NZ)
JS301	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED10/ED40/EZ10/EZ40)
JS305	1-216-295-00	METAL CHIP 0 5% 1/10W	
JS331	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED10/ED60/EZ10/EZ40/EZ60)
JS361	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED60/ED70/EZ60/EZ70)
JS401	1-216-295-00	METAL CHIP 0 5% 1/10W	
JS451	1-216-295-00	METAL CHIP 0 5% 1/10W	
JS701	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED60/EZ60)
JS702	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED60/EZ60)
JS703	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED70/EZ70)
JS707	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED10/ED40/ED60/EZ10/EZ40/EZ60)
JS708	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT EZ70: NZ)
JS902	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40)
JS904	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED10/ED40/ED60/ED70)
JS905	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70)
JS908	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED10/ED40/EZ10/EZ40)
		< COIL >	
L110	1-414-185-51	INDUCTOR 22uH (ED10/EZ10)	
L205	1-410-510-11	INDUCTOR 12uH	
L206	1-410-520-11	INDUCTOR 82uH	
L207	1-410-520-11	INDUCTOR 82uH	
L212	1-414-856-51	INDUCTOR 10uH	
L301	1-412-092-11	INDUCTOR 22mH	
L330	1-410-120-11	INDUCTOR 1.2mH (ED40/ED70/EZ70)	
L331	1-410-120-11	INDUCTOR 1.2mH	
L351	1-414-857-51	INDUCTOR 100uH (ED60/ED70/EZ60/EZ70)	
L400	1-414-184-51	INDUCTOR 15uH	
L401	1-414-185-51	INDUCTOR 22uH	
L402	1-414-185-51	INDUCTOR 22uH	
L403	1-414-185-51	INDUCTOR 22uH	
L600	1-414-187-51	INDUCTOR 47uH	
L601	1-414-856-51	INDUCTOR 10uH	
L602	1-414-856-51	INDUCTOR 10uH	
L701	1-414-179-51	INDUCTOR 2.2uH	
L702	1-414-856-51	INDUCTOR 10uH	
L703	1-414-856-51	INDUCTOR 10uH	
L704	1-414-856-51	INDUCTOR 10uH	
L705	1-414-856-51	INDUCTOR 10uH (ED70/EZ70)	
		< FLUORECENT INDICATOR >	
ND420	1-517-734-11	TUBE, FLUORESCENT INDICATOR	
		< PHOTO INTERRUPTER >	
PH100	8-749-013-23	PHOTO INTERRUPTER GP3S120	
PH101	8-749-013-23	PHOTO INTERRUPTER GP3S120	
		< IC LINK >	
⚠PS111	1-533-593-11	LINK, IC (2A)	
⚠PS330	1-533-586-31	LINK, IC (315mA)	
⚠PS600	1-533-593-11	LINK, IC (2A)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
⚠PS601	1-533-586-31	LINK, IC (315mA)			
		< TRANSISTOR >			
Q100	8-729-043-84	TRANSISTOR	PT380F3		
Q101	8-729-043-84	TRANSISTOR	PT380F3		
Q102	8-729-281-53	TRANSISTOR	2SC1815GR-TPE2		
Q161	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q191	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
					(ED40/ED70/EZ70)
Q201	8-729-421-19	TRANSISTOR	UN2213-TX		
Q202	8-729-421-19	TRANSISTOR	UN2213-TX		
Q203	8-729-421-19	TRANSISTOR	UN2213-TX		
Q206	8-729-421-19	TRANSISTOR	UN2213-TX		
Q330	8-729-012-31	TRANSISTOR	2SC4040-TL2-Q		
					(ED40/ED70/EZ70)
Q331	8-729-900-51	TRANSISTOR	UN2115-QRS (TX)		
					(ED40/ED70/EZ70)
Q332	8-729-012-31	TRANSISTOR	2SC4040-TL2-Q		
Q333	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q334	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q335	8-729-900-51	TRANSISTOR	UN2115-QRS (TX)		
Q337	8-729-424-18	TRANSISTOR	UN2113-TX		
Q338	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q400	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX		
Q401	8-729-421-19	TRANSISTOR	UN2213-TX		
Q402	8-729-421-22	TRANSISTOR	UN2211-TX		
Q403	8-729-421-22	TRANSISTOR	UN2211-TX		
Q410	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q701	8-729-106-68	TRANSISTOR	2SD1664-T100-R		
Q702	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX		(ED70/EZ70)
Q901	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX		
		< RESISTOR >			
R100	1-249-437-11	CARBON	47K	5%	1/4W
R101	1-216-041-00	METAL CHIP	470	5%	1/10W
R102	1-249-437-11	CARBON	47K	5%	1/4W
R103	1-216-085-00	METAL CHIP	33K	5%	1/10W
R104	1-216-085-00	METAL CHIP	33K	5%	1/10W
R105	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R106	1-249-417-11	CARBON	1K	5%	1/4W
R107	1-249-400-11	CARBON	39	5%	1/4W
R108	1-249-400-11	CARBON	39	5%	1/4W
R110	1-249-429-11	CARBON	10K	5%	1/4W
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W
R112	1-216-073-00	METAL CHIP	10K	5%	1/10W
R113	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R114	1-216-049-00	METAL CHIP	1K	5%	1/10W
R115	1-216-049-00	METAL CHIP	1K	5%	1/10W
R116	1-216-103-00	METAL CHIP	180K	5%	1/10W
R117	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R118	1-216-049-00	METAL CHIP	1K	5%	1/10W
R119	1-216-103-00	METAL CHIP	180K	5%	1/10W
R120	1-216-049-00	METAL CHIP	1K	5%	1/10W
R121	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R122	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R130	1-216-085-00	METAL CHIP	33K	5%	1/10W
R131	1-216-085-00	METAL CHIP	33K	5%	1/10W
R132	1-216-089-00	METAL CHIP	47K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R160	1-216-041-00	METAL CHIP	470	5%	1/10W
R161	1-216-073-00	METAL CHIP	10K	5%	1/10W
R162	1-216-049-00	METAL CHIP	1K	5%	1/10W
R163	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R164	1-216-073-00	METAL CHIP	10K	5%	1/10W
R165	1-216-049-00	METAL CHIP	1K	5%	1/10W
R166	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
					(ED10/EZ40)
R166	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
					(ED40/EZ60)
R166	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
					(ED60/EZ70: AS)
R166	1-216-073-00	METAL CHIP	10K	5%	1/10W
					(ED70/EZ70: NZ)
R166	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
					(EZ10)
R167	1-216-073-00	METAL CHIP	10K	5%	1/10W
R168	1-247-863-91	CARBON	22K	5%	1/4W
R169	1-216-049-00	METAL CHIP	1K	5%	1/10W
R170	1-216-121-91	RES, CHIP	1M	5%	1/10W
R171	1-216-049-00	METAL CHIP	1K	5%	1/10W
R172	1-216-073-00	METAL CHIP	10K	5%	1/10W
R173	1-216-073-00	METAL CHIP	10K	5%	1/10W
R174	1-216-073-00	METAL CHIP	10K	5%	1/10W
R175	1-216-113-00	METAL CHIP	470K	5%	1/10W
R176	1-216-089-00	METAL CHIP	47K	5%	1/10W
R177	1-216-105-91	RES, CHIP	220K	5%	1/10W
R178	1-216-089-00	METAL CHIP	47K	5%	1/10W
R179	1-216-089-00	METAL CHIP	47K	5%	1/10W
R180	1-216-089-00	METAL CHIP	47K	5%	1/10W
R181	1-216-041-00	METAL CHIP	470	5%	1/10W
R182	1-216-049-00	METAL CHIP	1K	5%	1/10W
R183	1-216-041-00	METAL CHIP	470	5%	1/10W
R184	1-216-073-00	METAL CHIP	10K	5%	1/10W
R185	1-216-073-00	METAL CHIP	10K	5%	1/10W
R186	1-249-417-11	CARBON	1K	5%	1/4W
R187	1-216-049-00	METAL CHIP	1K	5%	1/10W
R188	1-216-049-00	METAL CHIP	1K	5%	1/10W
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R191	1-216-103-00	METAL CHIP	180K	5%	1/10W
R192	1-216-049-00	METAL CHIP	1K	5%	1/10W
R193	1-216-121-91	RES, CHIP	1M	5%	1/10W
R194	1-249-437-11	CARBON	47K	5%	1/4W
					(ED40/ED70/EZ70)
R195	1-216-037-00	METAL CHIP	330	5%	1/10W
R196	1-216-037-00	METAL CHIP	330	5%	1/10W
R198	1-216-089-00	METAL CHIP	47K	5%	1/10W
R199	1-216-041-00	METAL CHIP	470	5%	1/10W
R201	1-216-041-00	METAL CHIP	470	5%	1/10W
R202	1-216-083-00	METAL CHIP	27K	5%	1/10W
R203	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R205	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R206	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R207	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
					(ED10/EZ10)
R207	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
					(ED40/ED60/ED70/EZ40/EZ60/EZ70)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MA-350

Ref. No.	Part No.	Description				Remark
R208	1-216-063-91	RES, CHIP	3.9K	5%	1/10W	(ED10/EZ10)
R208	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
R209	1-216-127-11	METAL CHIP	1.8M	5%	1/10W	
R210	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R212	1-216-025-91	RES, CHIP	100	5%	1/10W	(ED40/ED60/ED70/EZ70)
R214	1-247-807-31	CARBON	100	5%	1/4W	
R215	1-247-807-31	CARBON	100	5%	1/4W	
R216	1-216-095-00	METAL CHIP	82K	5%	1/10W	(EZ10/EZ40/EZ60/EZ70)
R217	1-216-025-91	RES, CHIP	100	5%	1/10W	
R218	1-216-025-91	RES, CHIP	100	5%	1/10W	
R220	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED40/ED60/ED70/EZ70: AS)
R221	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED40/ED60/ED70/EZ70: AS)
R224	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R301	1-216-103-00	METAL CHIP	180K	5%	1/10W	
R302	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R303	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R304	1-216-025-91	RES, CHIP	100	5%	1/10W	
R305	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R306	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R307	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R308	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R309	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R310	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R313	1-216-089-00	METAL CHIP	47K	5%	1/10W	(ED40)
R314	1-216-295-00	METAL CHIP	0	5%	1/10W	
R315	1-216-041-00	METAL CHIP	470	5%	1/10W	
R316	1-216-077-00	METAL CHIP	15K	5%	1/10W	(ED40)
R317	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R318	1-249-421-11	CARBON	2.2K	5%	1/4W	
R319	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R323	1-216-125-00	METAL CHIP	1.5M	5%	1/10W	
R330	1-249-394-11	CARBON	12	5%	1/4W F	(ED40/ED70/EZ70)
R331	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED40/ED70/EZ70)
R332	1-216-083-00	METAL CHIP	27K	5%	1/10W	(ED40/ED70/EZ70)
R334	1-216-295-00	METAL CHIP	0	5%	1/10W	
R335	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R337	1-216-295-00	METAL CHIP	0	5%	1/10W	
R338	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R339	1-216-081-00	METAL CHIP	22K	5%	1/10W	(ED10/ED60/EZ10/EZ40/EZ60)
R339	1-216-083-00	METAL CHIP	27K	5%	1/10W	(ED40/ED70/EZ70)
R340	1-249-389-11	CARBON	4.7	5%	1/4W F	(ED10/ED60/EZ10/EZ40/EZ60)
R340	1-249-395-11	CARBON	15	5%	1/4W F	(ED40/ED70/EZ70)
R341	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R342	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R344	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R345	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R346	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R347	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R350	1-216-081-00	METAL CHIP	22K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R351	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R352	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R353	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R354	1-216-033-00	METAL CHIP	220	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R355	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R360	1-216-049-00	METAL CHIP	1K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R361	1-216-049-00	METAL CHIP	1K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R368	1-216-133-00	METAL CHIP	3.3M	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R370	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R371	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	(ED60/ED70/EZ60/EZ70)
R372	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R378	1-249-434-11	CARBON	27K	5%	1/4W	(ED60/ED70/EZ60/EZ70)
R379	1-216-073-00	METAL CHIP	10K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R380	1-249-413-11	CARBON	470	5%	1/4W	(ED60/ED70/EZ60/EZ70)
R381	1-249-413-11	CARBON	470	5%	1/4W	(ED60/ED70/EZ60/EZ70)
R382	1-249-413-11	CARBON	470	5%	1/4W	(ED60/ED70/EZ60/EZ70)
R383	1-249-413-11	CARBON	470	5%	1/4W	(ED60/ED70/EZ60/EZ70)
R384	1-216-091-00	METAL CHIP	56K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R385	1-216-091-00	METAL CHIP	56K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R386	1-216-041-00	METAL CHIP	470	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R387	1-216-041-00	METAL CHIP	470	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R400	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R401	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R402	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R403	1-216-041-00	METAL CHIP	470	5%	1/10W	
R404	1-249-429-11	CARBON	10K	5%	1/4W	
R405	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R406	1-216-041-00	METAL CHIP	470	5%	1/10W	
R407	1-216-121-91	RES, CHIP	1M	5%	1/10W	
R408	1-216-025-91	RES, CHIP	100	5%	1/10W	
R409	1-216-295-00	METAL CHIP	0	5%	1/10W	
R410	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R411	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R412	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R413	1-249-417-11	CARBON	1K	5%	1/4W	
R414	1-249-417-11	CARBON	1K	5%	1/4W	
R421	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R422	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R423	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R424	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R425	1-216-085-00	METAL CHIP	33K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R426	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R428	1-216-041-00	METAL CHIP	470	5%	1/10W	
R429	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R432	1-249-429-11	CARBON	10K	5%	1/4W	
R450	1-216-029-00	METAL CHIP	150	5%	1/10W	
						(ED10/EZ10)
R451	1-216-021-00	METAL CHIP	68	5%	1/10W	
R452	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R453	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
						(ED10/EZ10)
R454	1-249-421-11	CARBON	2.2K	5%	1/4W	
						(ED10/EZ10)
R455	1-216-021-00	METAL CHIP	68	5%	1/10W	
R456	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R457	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R458	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R459	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R460	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R461	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R462	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R463	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R464	1-216-081-00	METAL CHIP	22K	5%	1/10W	
						(ED10/ED40/ED60/ED70/EZ70)
R465	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R466	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R468	1-249-431-11	CARBON	15K	5%	1/4W	
R469	1-249-437-11	CARBON	47K	5%	1/4W	
R470	1-249-437-11	CARBON	47K	5%	1/4W	
R602	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R608	1-216-471-11	METAL OXIDE	27	5%	3W	F
R609	1-215-857-11	METAL OXIDE	10	5%	1W	F
R616	1-249-419-11	CARBON	1.5K	5%	1/4W	
⚠R702	1-212-893-00	FUSIBLE	330	5%	1/4W	F
R703	1-216-041-00	METAL CHIP	470	5%	1/10W	
R704	1-216-041-00	METAL CHIP	470	5%	1/10W	
R705	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R706	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R707	1-216-049-00	METAL CHIP	1K	5%	1/10W	
						(ED70/EZ70)
R709	1-247-807-31	CARBON	100	5%	1/4W	
R901	1-216-021-00	METAL CHIP	68	5%	1/10W	
R902	1-249-407-11	CARBON	150	5%	1/4W	
R904	1-249-408-11	CARBON	180	5%	1/4W	
R905	1-216-025-91	RES, CHIP	100	5%	1/10W	
R906	1-216-021-00	METAL CHIP	68	5%	1/10W	
R907	1-216-041-00	METAL CHIP	470	5%	1/10W	
R908	1-216-041-00	METAL CHIP	470	5%	1/10W	
						(ED60/ED70/EZ60/EZ70)
R913	1-216-295-00	METAL CHIP	0	5%	1/10W	
R914	1-216-295-00	METAL CHIP	0	5%	1/10W	
						(ED60/ED70/EZ60/EZ70)

< SWITCH >

Ref. No.	Part No.	Description	Remark
S100	1-771-155-11	SWITCH, ROTARY (CAM ENCODER)	
S101	1-762-108-11	SWITCH, PUSH (1 KEY) (REC PROOF)	
S450	1-771-574-21	SWITCH, TACTILE (I/⏻)	(ED10/EZ10)
S451	1-771-574-21	SWITCH, TACTILE (≙EJECT)	(ED10/EZ10)
S452	1-771-574-21	SWITCH, TACTILE (● REC)	(ED10/EZ10)
S453	1-771-574-21	SWITCH, TACTILE (PROGRAM/TRACKING +)	(ED10/EZ10)
S454	1-771-574-21	SWITCH, TACTILE (PROGRAM/TRACKING +)	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
S455	1-771-574-21	SWITCH, TACTILE (COLOR SYSTEM)	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
S456	1-771-574-21	SWITCH, TACTILE (COLOR SYSTEM)	(ED10/EZ10)
S457	1-771-574-21	SWITCH, TACTILE (❚❚ PAUSE)	(ED10/EZ10)
S458	1-771-574-21	SWITCH, TACTILE (PROGRAM/TRACKING -)	(ED10/EZ10)
S459	1-771-574-21	SWITCH, TACTILE (PROGRAM/TRACKING -)	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
S460	1-771-574-21	SWITCH, TACTILE (ONE TOUCH TUNING/ RF CHANNEL)	(ED10/EZ10)
S461	1-771-574-21	SWITCH, TACTILE (ONE TOUCH TUNING/RF CHANNEL)	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
S462	1-771-574-21	SWITCH, TACTILE (SP/LP (SP/EP))	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
S463	1-571-308-11	SWITCH, SLIDE (NTSC PB)	(ED10/ED40/ED60/ED70/EZ70)
S464	1-571-588-11	SWITCH, SLIDE (NTSC PB)	(EZ10/EZ40/EZ60)
S466	1-771-574-21	SWITCH, TACTILE (INPUT SELECT)	(ED4 0/ED60/ED70/EZ40/EZ60/EZ70)

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
T330	1-423-415-11	TRANSFORMER, BIAS OSCILLATION	(ED40/ED70/EZ70)
T331	1-423-413-11	TRANSFORMER, BIAS OSCILLATION	(ED40/ED70/EZ70)
T331	1-423-414-11	TRANSFORMER, BIAS OSCILLATION	(ED10/ED60/EZ10/EZ40/EZ60)

< TUNER >

Ref. No.	Part No.	Description	Remark
TU701	1-693-415-11	TUNER, MOD/IF SOLID TYPE (AERIAL)	(ED10/ED40/ED60/ED70)
TU701	1-693-416-11	TUNER, MOD/IF SOLID TYPE (AERIAL)	(EZ10/EZ40/EZ60/EZ70)

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X161	1-767-855-11	VIBRATOR, CRYSTAL (10MHz)	
X162	1-579-463-11	VIBRATOR, CRYSTAL (32.768kHz)	
X201	1-760-708-11	VIBRATOR, CRYSTAL (4.433619MHz)	
* X202	1-760-709-11	VIBRATOR, CRYSTAL (3.579545MHz)	(ED10/ED40/ED60/ED70/EZ70)
X401	1-767-856-11	VIBRATOR, CRYSTAL (17.734475MHz)	

Ref. No.	Part No.	Description
*	A-6791-860-A	MF-317 BOARD, COMPLETE (ED60)
*	A-6791-865-A	MF-317 BOARD, COMPLETE (EZ40/EZ60)
*	A-6791-868-A	MF-317 BOARD, COMPLETE (ED40)
*	A-6791-874-A	MF-317 BOARD, COMPLETE (ED70)
*	A-6791-877-A	MF-317 BOARD, COMPLETE (EZ70)

****

(Ref.No.2,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			
C461	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C481	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		(ED40/ED60/ED70/EZ70)			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

	Ref. No.	Part No.	Description			Remark
			< CONNECTOR >			
	CN461	1-784-449-11	CONNECTOR, FFC/FPC 7P (ED40/ED70/EZ70)			
*	CN481	1-568-943-11	PIN, CONNECTOR 5P (ED40/ED60/ED70/EZ70)			
	CN482	1-784-447-11	CONNECTOR, FFC/FPC 5P (ED60/EZ40/EZ60)			
			< JACK >			
	CNJ481	1-766-861-11	JACK, PIN (3P) (LINE-2 IN) (ED60/ED70/EZ70)			
	CNJ481	1-784-570-11	JACK, PIN 3P (LINE-2 IN) (ED40)			
			< DIODE >			
	D461	8-719-056-07	DIODE SLR-342MCT31 (ON/STANDBY)			
	D462	8-719-045-62	DIODE SLR-342VCT31 (SYNCHRO REC) (ED40/ED70/EZ70)			
	D480	8-719-017-09	DIODE 02DZ6.2-TPH3 (ED40/ED60/ED70/EZ70)			
	D481	8-719-071-15	DIODE HZM6.8ZWA1TL (ED40/ED60/ED70/EZ70)			
	D490	8-719-071-15	DIODE HZM6.8ZWA1TL (ED40/ED60/ED70/EZ70)			
	D491	8-719-071-15	DIODE HZM6.8ZWA1TL (ED40/ED60/ED70/EZ70)			
			< ENCAPSULATED COMPONENT >			
	FL491	1-236-163-11	ENCAPSULATED COMPONENT (EZ70)			
	FL492	1-236-163-11	ENCAPSULATED COMPONENT (EZ70)			
			< IC >			
	IC461	8-749-011-05	IC GP1U28X			
			< JUMPER RESISTOR >			
	JR400	1-216-296-00	METAL CHIP	0	5%	1/8W
	JR402	1-216-296-00	METAL CHIP	0	5%	1/8W
	JR403	1-216-296-00	METAL CHIP	0	5%	1/8W
	JR404	1-216-296-00	METAL CHIP	0	5%	1/8W
	JR405	1-216-296-00	METAL CHIP	0	5%	1/8W
	JS490	1-216-296-00	METAL CHIP	0	5%	1/8W (ED40/ED60/ED70/EZ70)
	JS491	1-216-295-00	METAL CHIP	0	5%	1/10W (ED40)
	JS492	1-216-295-00	METAL CHIP	0	5%	1/10W (ED40/ED60/ED70)
	JS493	1-216-296-00	METAL CHIP	0	5%	1/8W (ED40/ED60/ED70)
	JS494	1-216-295-00	METAL CHIP	0	5%	1/10W (ED60/ED70/EZ70)
			< RESISTOR >			
	R461	1-216-029-00	METAL CHIP	150	5%	1/10W
	R462	1-216-037-00	METAL CHIP	330	5%	1/10W (ED40/ED70/EZ70)
	R480	1-216-021-00	METAL CHIP	68	5%	1/10W (ED40/ED60/ED70/EZ70)
	R490	1-216-041-00	METAL CHIP	470	5%	1/10W (ED40)
	R490	1-216-295-00	METAL CHIP	0	5%	1/10W (ED60/ED70/EZ70)
	R491	1-216-041-00	METAL CHIP	470	5%	1/10W (ED40)
	R491	1-216-295-00	METAL CHIP	0	5%	1/10W (ED60/ED70/EZ70)
			< SWITCH >			
	S461	1-762-196-21	SWITCH, TACT (I/⏻)			
	S462	1-762-196-21	SWITCH, TACT (SYNCHRO REC) (ED40/ED70/EZ70)			
*		A-6791-591-A	NK-11 BOARD, COMPLETE (ED70/EZ70: NZ) ********************** (Ref.No.2,000 Series)			
			< CAPACITOR >			
	C003	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
	C004	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
	C005	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
	C006	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
	C007	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
	C008	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
	C009	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
	C010	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
	C011	1-164-232-11	CERAMIC CHIP	0.01uF		50V
	C012	1-164-232-11	CERAMIC CHIP	0.01uF		50V
	C013	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
	C014	1-164-232-11	CERAMIC CHIP	0.01uF		50V
	C015	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
	C016	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
	C017	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
	C018	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
	C019	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
	C020	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
	C021	1-113-642-11	TANTAL. CHIP	47uF	10%	10V
	C022	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
	C023	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
			< CONNECTOR >			
*	CN001	1-691-183-11	CONNECTOR (BOARD TO BOARD) 13P			
			< DIODE >			
	D001	8-719-066-72	DIODE BB135			
			< FERRITE BEAD >			
	FB001	1-543-813-21	FERRITE 0uH			
	FB002	1-543-813-21	FERRITE 0uH			
	FB003	1-543-813-21	FERRITE 0uH			
			< IC >			
	IC001	8-759-526-43	IC TDA9874H/V1,118			
			< COIL >			
	L006	1-412-945-11	INDUCTOR 3.3uH			
			< IC LINK >			
⚠	PS001	1-576-122-21	LINK, IC (400mA)			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R001	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R002	1-216-073-00	METAL CHIP	10K	5%	1/10W
R003	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R004	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R005	1-216-041-00	METAL CHIP	470	5%	1/10W
R006	1-216-041-00	METAL CHIP	470	5%	1/10W
R007	1-216-001-00	METAL CHIP	10	5%	1/10W
R008	1-216-001-00	METAL CHIP	10	5%	1/10W
R009	1-216-001-00	METAL CHIP	10	5%	1/10W
R010	1-216-001-00	METAL CHIP	10	5%	1/10W
R011	1-216-304-11	METAL CHIP	3.3	5%	1/10W
R012	1-216-304-11	METAL CHIP	3.3	5%	1/10W
R013	1-216-001-00	METAL CHIP	10	5%	1/10W
R014	1-216-295-00	METAL CHIP	0	5%	1/10W
R015	1-216-295-00	METAL CHIP	0	5%	1/10W
R016	1-216-033-00	METAL CHIP	220	5%	1/10W
		< VIBRATOR >			
X001	1-767-897-11	VIBRATOR, CRYSTAL (24.576MHz)			

Ref. No.	Part No.	Description			Remark
	1-468-312-12	POWER BLOCK (HS-921SF) (ED10)			
	1-468-312-22	POWER BLOCK (HS-921SF1) (ED40/ED60/ED70)			
		************************			
		(Ref.No. 3,000 Series)			
		< CAPACITOR >			
⚠C101	1-115-165-11	FILM	0.1uF		250V
⚠C102	1-115-165-11	FILM	0.1uF		250V
⚠C108	9-980-012-01	ELECT	150uF		450V
C207	1-126-964-11	ELECT	10uF		50V
C401	1-126-967-11	ELECT	47uF		50V
		< DIODE >			
⚠D102	8-719-312-16	DIODE EG01			
⚠D104	8-719-026-52	DIODE 10ELS2			
⚠D106	8-719-100-30	DIODE RD12ES			
⚠D201	8-719-018-83	DIODE D2S4M			
⚠D401	8-719-052-89	DIODE D1NL40			
⚠D501	8-719-026-52	DIODE 10ELS2			
		< FUSE >			
⚠F101	1-532-388-31	FUSE (2.0A/250V)			
		< IC >			
⚠IC101	9-939-634-01	IC MIP-164			
⚠IC201	8-759-420-19	IC AN1431T			
		< PHOTO COUPLER >			
⚠PC101	8-749-924-84	COUPLER, PHOTO PS2561			

Ref. No.	Part No.	Description			Remark
	1-468-311-11	POWER BLOCK (SR-718) (EZ10)			
	1-468-311-21	POWER BLOCK (SR-708) (EZ40/EZ60/EZ70)			
		********************			
		(Ref.No. 4,000 Series)			
		< CAPACITOR >			
C112	1-130-495-51	FILM	0.1uF		50V
C114	1-130-495-51	FILM	0.1uF		50V
C115	1-130-495-51	FILM	0.1uF		50V
		< DIODE >			
⚠D107	9-900-534-01	DIODE ERA18-02			
⚠D108	9-900-534-01	DIODE ERA18-02			
D205	9-900-534-01	DIODE ERA18-02			
		< FUSE >			
⚠F101	1-532-388-31	FUSE (2.0A/250V)			
		< IC >			
⚠IC201	8-759-420-19	IC AN1431T			
		< PHOTO COUPLER >			
⚠PC101	8-749-924-84	COUPLER, PHOTO PS2561			
		< RESISTOR >			
⚠R208	9-908-233-01	FUSIBLE	0.47		1/4W

Ref. No.	Part No.	Description			Remark
*	A-6791-858-A	RJ-82 BOARD, COMPLETE (ED60/ED70)			
*	A-6791-864-A	RJ-82 BOARD, COMPLETE (EZ60)			
*	A-6791-867-A	RJ-82 BOARD, COMPLETE (ED40)			
*	A-6791-876-A	RJ-82 BOARD, COMPLETE (EZ70: AS)			
*	A-6791-879-A	RJ-82 BOARD, COMPLETE (EZ70: NZ)			
		*********************			
		(Ref.No.1,000 Series)			
		< CAPACITOR >			
C951	1-126-160-11	ELECT	1uF	20%	50V (ED40/ED60/ED70/EZ70: AS)
C952	1-126-160-11	ELECT	1uF	20%	50V (ED40/ED60/ED70/EZ70: AS)
C960	1-126-925-11	ELECT	470uF	20%	10V (EZ70: NZ)
C961	1-109-982-11	CERAMIC CHIP	1uF	10%	10V (EZ70: NZ)
C962	1-164-505-11	CERAMIC CHIP	2.2uF		16V (EZ70: NZ)
C963	1-124-589-11	ELECT	47uF	20%	16V (EZ70: NZ)
		< CONNECTOR >			
* CN951	1-568-948-11	PIN, CONNECTOR 10P (ED60/ED70/EZ70: AS)			
* CN952	1-568-942-21	PIN, CONNECTOR 4P (ED40)			
* CN953	1-568-942-11	PIN, CONNECTOR 4P (EZ60/EZ70: NZ)			
* CN954	1-568-943-11	PIN, CONNECTOR 5P (EZ70: NZ)			
		< JACK >			
CNJ951	1-565-726-11	JACK, PIN 3P (LINE-3 IN (SAT IN)) (ED60/ED70/EZ70: AS)			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
CNJ951	1-784-817-11	JACK, PIN 3P (LINE-3 IN (SAT IN)) (ED40)	
CNJ952	1-784-816-11	JACK, PIN 2P (LINE-2 OUT (AUDIO)) (ED60/ED70/EZ60/EZ70)	
CNJ953	1-784-818-11	JACK, PIN 2P (SAT DEC) (EZ70: NZ)	
		< DIODE >	
D951	1-216-295-00	METAL CHIP 0 5% 1/10W (EZ70: NZ)	
D951	8-719-017-09	DIODE 02DZ6.2-TPH3 (ED40/ED60/ED70/EZ70: AS)	
D952	8-719-017-09	DIODE 02DZ6.2-TPH3 (EZ70: NZ)	
		< ENCAPSULATED COMPONENT >	
FL951	1-236-163-11	ENCAPSULATED COMPONENT (EZ70: AS)	
FL952	1-236-163-11	ENCAPSULATED COMPONENT (EZ70: AS)	
		< IC >	
IC951	8-759-433-44	IC MM1031XML (EZ70: NZ)	
		< JUMPER RESISTOR >	
JR951	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR953	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR954	1-216-296-00	METAL CHIP 0 5% 1/8W	
JS951	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70)
JS952	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70)
JS954	1-216-295-00	METAL CHIP 0 5% 1/10W	(EZ70: NZ)
JS955	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ60/EZ70: AS)
JS956	1-216-295-00	METAL CHIP 0 5% 1/10W	(EZ70: NZ)
JS957	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40)
		< RESISTOR >	
R951	1-216-021-00	METAL CHIP 68 5% 1/10W	(ED40/ED60/ED70/EZ70: AS)
R952	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70/EZ70: AS)
R953	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70/EZ70: AS)
R954	1-216-041-00	METAL CHIP 470 5% 1/10W	(ED60/ED70/EZ60/EZ70)
R955	1-216-041-00	METAL CHIP 470 5% 1/10W	(ED60/ED70/EZ60/EZ70)
R956	1-216-021-00	METAL CHIP 68 5% 1/10W	(EZ70: NZ)
R957	1-216-021-00	METAL CHIP 68 5% 1/10W	(EZ70: NZ)
R958	1-216-097-00	METAL CHIP 100K 5% 1/10W	(ED40/ED60/ED70/EZ70: AS)
R959	1-216-097-00	METAL CHIP 100K 5% 1/10W	(ED40/ED60/ED70/EZ70: AS)

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remark
10	1-790-537-11	CABLE, FLAT (FFC) (FDS-5) (ED10/EZ10)	
52	1-790-536-11	CABLE, FLAT (FFC) (FMD-13) (ED10/EZ10)	
⚠56	1-777-854-21	CORD, POWER (ED10)	
⚠56	1-777-855-22	CORD, POWER (EZ10)	
111	1-790-533-11	CABLE, FLAT (FFC) (FDM-6)	
114	1-790-534-11	CABLE, FLAT (FFC) (FMF-36)	(ED60/EZ40/EZ60)
114	1-790-535-11	CABLE, FLAT (FFC) (FMF-33)	(ED40/ED70/EZ70)
123	1-762-844-21	SWITCH, ROTARY (ED70/EZ70)	
⚠157	1-777-854-21	CORD, POWER (ED40/ED60/ED70)	
⚠157	1-777-855-22	CORD, POWER (EZ40/EZ60/EZ70)	
704	1-500-144-11	HEAD, FE	
768	1-759-453-11	DRUM ASSY DZH-89A-R (ED10/EZ10)	
768	8-839-037-04	DRUM ASSY DZH-74E/Z-RP (ED40/EZ40)	
768	8-839-045-02	DRUM ASSY DZH-95A/Z-RP	(ED60/ED70/EZ60/EZ70)
M902	1-698-971-11	MOTOR, DC (CAPSTAN)	
M903	X-3947-577-1	MOTOR ASSY, CAM	

****
HARDWARE LIST
****

Ref. No.	Part No.	Description	Remark
#1	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
#2	7-682-147-01	SCREW +P 3X6	
#3	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#4	7-685-133-19	SCREW (DIA. 2.6) (IT3B)	

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-418-159-11	COMMANDER, STANDARD (RMT-V245C)	(EZ60)
	1-418-160-11	COMMANDER, STANDARD (RMT-V248C)	(ED10)
	1-418-161-11	COMMANDER, STANDARD (RMT-V247C)	(ED60)
	1-418-161-21	COMMANDER, STANDARD (RMT-V247D)	(ED70)
	1-475-614-11	COMMANDER, STANDARD (RMT-V245) (EZ70)	
	1-475-614-21	COMMANDER, STANDARD (RMT-V245A)	(EZ10/EZ40)
	1-475-616-11	COMMANDER, STANDARD (RMT-V247)	(ED40)
⚠	1-569-008-21	ADAPTOR, CONVERSION 2P	(ED10: ME, SG/ED40: ME, SG/ED60: ME, SG)
	1-696-593-11	CORD, CONNECTION (PAL) (ANT) 1.5m	
	3-709-128-01	COVER, BATTERY (for RMT-V245/V245A/V245C)	(EZ10/EZ40/EZ60/EZ70)
	3-709-133-11	COVER, BATTERY (for RMT-V247/V245C/V247D)	(ED40/ED60/ED70)
	3-709-322-01	COVER, BATTERY (for RMT-V248C) (ED10)	
	3-865-382-11	MANUAL, INSTRUCTION (ENGLISH) (ED70)	
	3-865-383-11	MANUAL, INSTRUCTION (ENGLISH) (EZ70)	
	3-865-384-11	MANUAL, INSTRUCTION (ENGLISH) (ED60)	
	3-865-384-21	MANUAL, INSTRUCTION (ARABIC)	(ED60: ME, SG)
	3-865-384-31	MANUAL, INSTRUCTION (PERSIAN)	(ED60: SG)
	3-865-384-41	MANUAL, INSTRUCTION (URDU) (ED60: SG)	
	3-865-384-51	MANUAL, INSTRUCTION (RUSSIAN)	(ED60: PS, SG)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
	3-865-385-11	MANUAL, INSTRUCTION (ENGLISH)	(EZ40/EZ60)
	3-865-386-11	MANUAL, INSTRUCTION (ENGLISH) (ED40)	
	3-865-386-21	MANUAL, INSTRUCTION (ARABIC)	(ED40: ME, SG)
	3-865-386-31	MANUAL, INSTRUCTION (PERSIAN)	(ED40: SG)
	3-865-386-41	MANUAL, INSTRUCTION (URDU) (ED40: SG)	
	3-865-386-51	MANUAL, INSTRUCTION (RUSSIAN)	(ED40: PS, SG)
	3-865-387-11	MANUAL, INSTRUCTION (ENGLISH)	(ED10: MPS)
	3-865-387-12	MANUAL, INSTRUCTION (ENGLISH)	(ED10: ME, PS, SG)
	3-865-387-21	MANUAL, INSTRUCTION (ARABIC)	(ED10: ME, SG)
	3-865-387-31	MANUAL, INSTRUCTION (PERSIAN)	(ED10: SG)
	3-865-387-41	MANUAL, INSTRUCTION (URDU) (ED10: SG)	
	3-865-387-51	MANUAL, INSTRUCTION (RUSSIAN)	(ED10: PS, SG)
	3-865-387-61	MANUAL, INSTRUCTION (SWAHILI)	(ED10: PS)
	3-865-388-11	MANUAL, INSTRUCTION (ENGLISH) (EZ10)	
*	3-961-581-01	SHEET, PROTECTION (ED10/EZ10)	
*	3-979-710-01	SPACER (ED10/EZ10)	

9-921-711-11

Sony Corporation
Home A&V Products Company

99B057014-1D
Printed in Singapore © 1999. 2
Published by Quality Assurance Dept.
(Shinagawa)